

NOVEMBER 1916 ~ No 131

Monthly

A Reference for Buyers

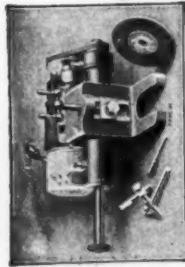
HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

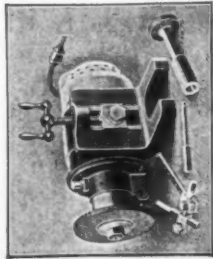
Published by
A·H·HITCHCOCK
1220-1235 Caxton Building
Chicago

HISEY

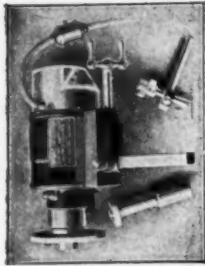
Electric Drills and Grinders



Combination Internal and External Grinder
Two Sizes, $\frac{1}{4}$ and $\frac{1}{2}$ Horse Power



Angle Plate Grinder
Five Sizes $\frac{1}{4}$ to 3 Horse Power



Tool Post Grinder
Ten Styles and Sizes



"Hisey" Hand Drill
Eight Styles and Speeds

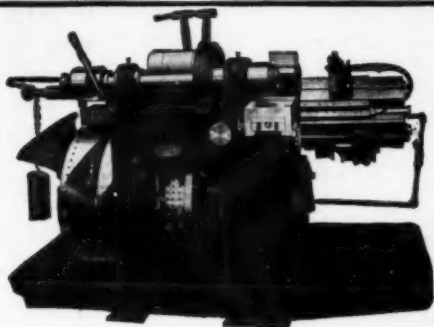
Most Complete Line of
Portable Electric Tools

Write for Catalogue H

The
Hisey-Wolf Machine Co.

Cincinnati, Ohio

New York Office, 50 Church St.



The GRIDLEY

Automatic Turret Lathe

The power of the Gridley Automatic to produce better work economically is a direct result of its rigid construction and stability.

It has a sturdy turret supported at two points in head stock; the tools held rigidly on tool slides close up to the work.

Sifted down to fine points you have a machine that is well built, that stands up and that produces continuously—the utmost in screw cutting economy on a range of work up to 5" in diameter.

Ask for Catalog "G-11"

THE NATIONAL-ACME MFG. CO.

GENERAL OFFICES
CLEVELAND

Windsor, Vermont

CANADIAN SCREW PLANT
MONTREAL

Branch Offices

NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO
WAREHOUSES—NEW YORK, CHICAGO FOREIGN REPRESENTATIVES

Makers of Gridley Single and Multiple Spindle Automatics at Windsor, Vermont, and Acme Automatics, Threading Dies and Screw Machine Products at Cleveland, Ohio.

2200 Degrees or 1700 Degrees

Which Is Better for High Speed Steel?

Heat-treating high speed steel the old way, at a temperature of 2200 Fahr., necessarily results in many failures and much loss from pitting, breaking or distortion. If you are handling high speed steel in this way, these losses amount to a substantial sum. By using

HETZY
HEAT EASY

at a temperature of only 1700 degrees Fahr. you not only avoid any loss, either from distortion, breaking or pitting, but you can do all your tempering and hardening with ordinary, unskilled labor, saving the waste of material as well as the high price you pay for special skill.

We Stand Ready to Prove It

You can have 30 days to demonstrate the material and the process in your own plant, on your own work and with your own men. We are glad to assume all the apparent risk, because we know that actually there is none. If you use HETZY once, you won't heat-treat high speed steel without it.

*This Is Good Enough to Investigate
Write Now for More Facts*

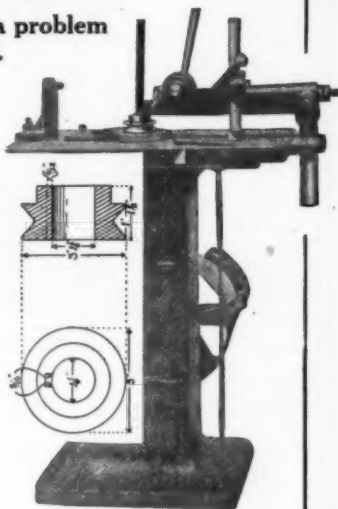
Bennett Metal Treating Company
Elmwood, Conn.

KEYSEATING

need not be a problem
in your shop.

No. 2 Keyseater
showing cutting of
keyway in small
pulley; with a dia-
gram of work.

Time—1 minute.



You may have small jobs
like this one or cone pul-
leys, crank handles or
gears to keyseat. Our
Nos. 1 & 2 machines will
handle them satisfactorily.

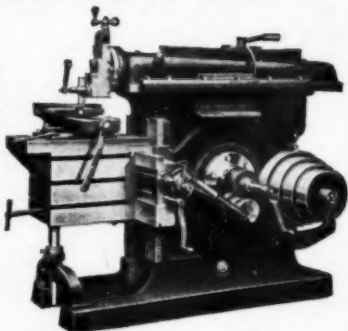
DAVIS MACHINE TOOL CO., Inc.

ROCHESTER, N. Y., U. S. A.

SHAPERS

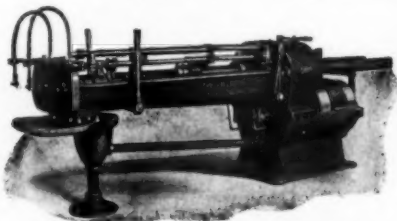
12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B.,
Cincinnati, O., U.S.A.

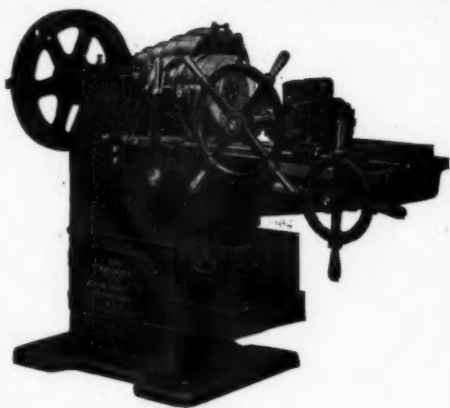
Broaching Machines And Broaching Tools



Our Famous Double Machine

The Most Complete Line In The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

THE J. N. LAPOINTE CO., - - New London, Conn.



Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

YOU Want Tool Holders that have MADE GOOD

Armstrong Tool Holders

Were Awarded The

Grand Prize

**The Highest Possible Award at the Panama-Pacific
International Exposition—1915**

They Always Make Good



They Are Used in Most of the Big Machine Shops of the World

Send for Catalog

Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.



Allen Safety Set Screws

Any Length Point or Thread.

We make a specialty of short lengths.



Allen Socket Cap Screws

**Are neat in appearance
and exceedingly strong.
A big improvement over
the slotted head type.**



Send for circular No. 13 and sample screws

ALLEN MFG. CO., - Hartford, Conn.

Peoples Life Insurance Bldg., Chicago, Ill.

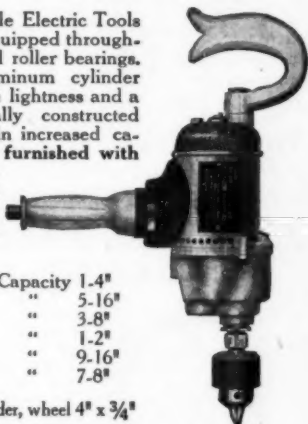
173 Princess St., Manchester, England

Thor

Universal Electric Drills

Licensed Under Burke Universal Motor Patent

The only Portable Electric Tools made that are equipped throughout with ball and roller bearings. Made with aluminum cylinder insuring extreme lightness and a powerful specially constructed motor resulting in increased capacity. Can be furnished with Universal, Alternating or Direct current motor 110 or 220 volts.



000	Drilling Capacity	1-4"
00	"	" 5-16"
0	"	" 3-8"
01	"	" 1-2"
1	"	" 9-16"
2	"	" 7-8"

No. 6 Electric Grinder, wheel 4" x 3/4"

Shipped On Trial

Independent Pneumatic Tool Company

Chicago New York Pittsburgh Detroit
San Francisco Birmingham Montreal

ELECTRIC EUCLID HOISTS

The Many Purpose Hoist

A Euclid Hoist is so designed that, with a few easily made changes, it may be used as a monorail hoist, on a jib crane or as the main unit or "heart" of a traveling crane.

The value of this feature is apparent to both the small and large manufacturer. The Euclid Hoist will grow with your plant or may be changed from place to place to meet new developments.

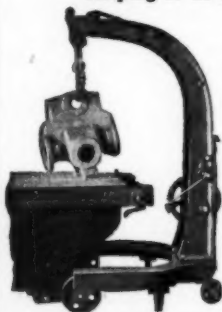
The Euclid Crane & Hoist Co.

Dept. C

EUCLID, OHIO, U. S. A.

A Week Spent in Your Own Shop

Helping to do the Heavy Lifting



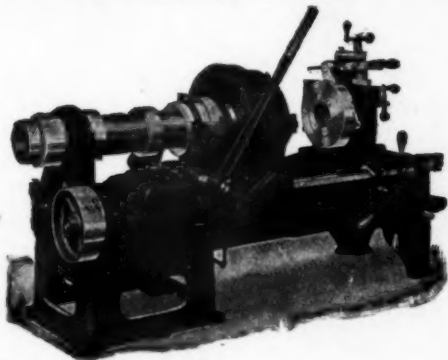
—would cure forever any lingering belief that it is economy to use a crew of men to do that kind of work by main strength and awkwardness, when one man could do it so much more easily and quickly with a Canton Floor Crane and Hoist, "the Handiest Tool in the Shop." It often saves upwards of a dollar an hour, while expediting the work and insuring greater safety to both the men and the material handled. Double gears are furnished at a small extra cost.

Description—or Trial?

CANTON FOUNDRY & MCHE. CO., Canton, O.

Bignall & Keeler Machines

For Threading Pipe from $\frac{1}{4}$ to 18 in.



It's to your interest to know:—

That Every B. & K. has built into it the conveniences and sterling wearing qualities that 32 years' experience has taught us.

That Every one is equipped with the Peerless Quick Adjusting Mechanism, which enables you to make instant adjustment to the thousandth of an inch without the use of tools.

That You have 17 styles and sizes to select from, to thread pipe from $\frac{1}{4}$ to 18 in. in diameter.

That B. & Ks. stand up to the hardest work every day in the year, because built that way.

*Write us today about your requirements.
Our experience and experts are at your service.*

Bignall & Keeler Machine Works
Edwardsville, Ill.



Blueprints

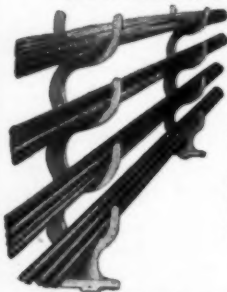
The Wickes

Continuous Electric.
Sells at **half** the
price. Uses **half**
the **current**
of others.
Perfect prints
up to 48" in
width and of
unlimited
length.

Wickes Bros., Water St.,
Saginaw, Mich.

Inventory Is Now Very Near

How About that Bar Stock?



You know that last year you were not
satisfied with the way your pipe, shaft-
ing and bars were stored and kept
track of—sometimes not kept track of
—and you decided that in another
year you would institute a reform.
Well, inventory time is getting pretty
close, and you had better order your

"Handiest Racks"

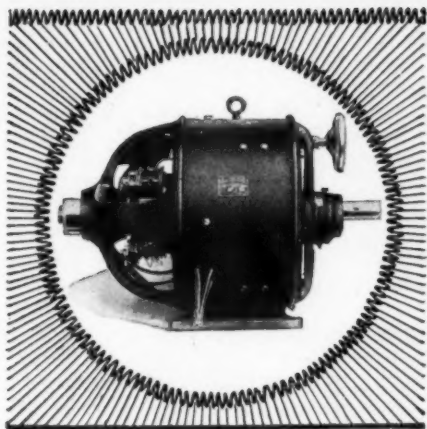
now and be ready. You know they
will store your bar stock in a fourth
the space, where it is easy to assort
and count and to lift in or out.

*Can make prompt ship-
ment on early orders*

Wm. S. Yohe Supply Co.

314 Lincoln Way, West,

Canton, Ohio



You must have the right cutting speeds to complete each operation in the quickest possible time on your machine tools. The simplest way of making sure of the best results is by applying

Reliance

Adjustable Speed

Motors

These motors run at any speed over wide ranges and make speed changing easy and quick. The motors develop full power and will carry heavy overloads at all speeds. No electric controller is needed.

Get details in Bulletin 1010
(We build constant speed motors)

Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.



Tucker's Safety First

Oil Hole Covers

Require but one hand to pump in the oil. Adapted to all kinds of mechanism having oil holes leading to a bearing, and locate the parts to be lubricated.

*Send for Catalogue
Oil Hole Covers No. 5*



Closed



Open

Style E



Style C



Style F, Drive



Style A



Style D



Style B



Rotary Head



Open



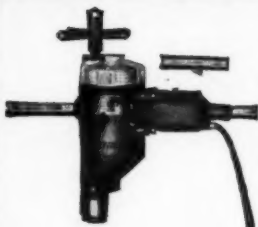
Closed

W.C. & F.C. TUCKER, Hartford, Conn.

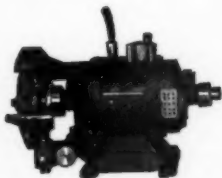


Van. Dorn

**Portable
Electric Drills,
Grinders,
Reamers, etc.**



These instruments give continuous and satisfactory service under most severe conditions and carry more overload than any other tool of the same type and size. Why? All parts over-size, annular ball bearings wherever practical, fan-cooled motor, special make and break switch.



**Made in Various
Types and Sizes**

*Write Dept. H. M. T. L.
for catalogs*

**The Van Dorn Electric Tool Company
Cleveland, Ohio**

In A Class By Itself



Is our New Model Bench Miller; because, we furnish with the machine our Quick operating Lever Vise, also Index Centers and two speed friction countershaft.

Send for circular

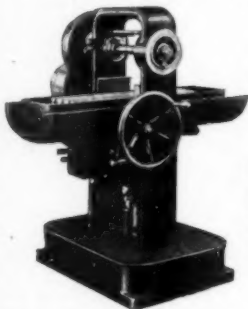
The Carter & Hakes Co.

West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.

WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis,

Takes Wide Cuts in Hard Steel



**To the Full Power of
a 3½" Double Belt**

A radical advance in design and construction is embodied in the

**Briggs High Duty
Milling Machine.**

Especially adapted to form and gang milling on steel parts for automobiles, guns, etc., or for difficult or heavy milling of any kind.

*Upon request, we shall
take pleasure in mailing
full description.*

GOOLEY & EDLUND, Inc., Cortland, N. Y.



The "Whitney" Hand Miller

is an all around machine. It will handle thousands of milling jobs that are now being done on larger twice-the-price machines.

The Jones & Lamson Machine Co., of Springfield, Vt., say:

"Your Milling Machine is one of the most indispensable tools in our milling department on account of its adaptability to many special uses."

You, too, will find this machine a profitable investment.

Simply send a postal for Catalog No. 8.

The Whitney Mfg. Co., - Hartford, Conn.

Chains—Keys—Hand Milling Machines



This is our No. 1 Bench Miller

Our complete line of Millers range from the smallest machine built to our No. 5 (a floor type) weighing 1200 lbs.

We solve Miller problems

Your Troubles
Our Pleasure

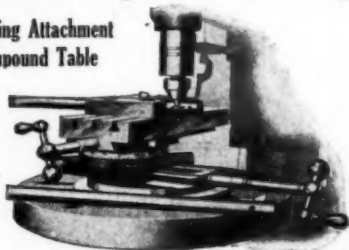
Ask for Catalogue

The Burke Machine Tool Company
Conneaut, Ohio

Valuable in Big or Small Shop

**Davis Milling Attachment
and Compound Table**

**Converts
any Drill
Press from
14 to 42-in.
Swing in
2 Minutes**



When your large millers are tied up with work, a Davis comes in handy spotting castings, milling ends of bosses, and many other odd jobs. Does 90% of the lighter jobs as well as a \$1,000 machine. The attractive prices on our air compressor, and our cylinder reamers for reboring the Ford car, will also surprise you. Circulars and prices?

Hinckley Machine Works, HINCKLEY, ILL.

A LINE:

Of

Millers

80 lbs. to 1200 lbs.

Tappers

0" to $\frac{5}{8}$ "

Drills

0" to $\frac{3}{8}$ "

"Burke"

Superior
Machine Tools
are accurate,
seasoned and
durable.

*Ask
for Catalogue*

The Burke Machine Tool Co.

Conneaut, Ohio

The most recent tunneling machine, described in this issue, gives evidence of a high grade of designing ability. This machine is now cutting a short rock tunnel for subway purposes and in doing this it has proved itself able to bore an 8-ft. hole in the hard New York gneiss at the rate of about 9 ft. in 24 hr.—a mechanical feat of no small consequence.

THE ROCK TUNNELING MACHINE CO.

INCORPORATED, NEW YORK, 1908
OFFICE AND SHOW ROOM 78 EAST 120TH STREET
NEW YORK CITY

OLIVER O. APP,
PRESIDENT AND GEN'L. MANAGER

Messrs. Lawson & Company, Inc.,
90 West Street,
New York City.
Gentlemen:

We wish to extend you an invitation to come and see our rock tunneling machine and the tunnel which it has driven through rock without the use of explosives, connecting the old subway system with the new under 42nd Street at the Grand Central Terminal Station.

It will be of interest to you to know that your Radbore Head was used for boring the square holes in the chucks and in the toolholders used to hold the chipping tools for the rock chipping hammers.

The Radbore Head is the only tool that we know of that would bore a square blind hole in the toolholder which we have used. It has been of great service to us.

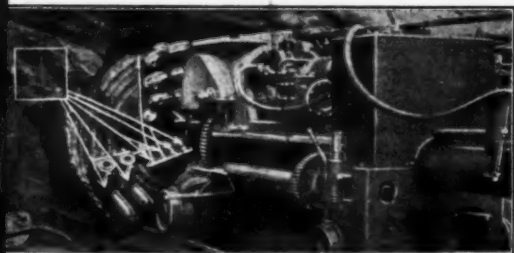
Very truly yours,

THE ROCK TUNNELING MACHINE CO., Inc.

Oliver O. App
President.

COA/23

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York
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RADBORE HEAD

On Aug. 24, *Engineering News*, the authoritative civil engineering magazine, had an article and editorial praising highly the design and performance of a new tunneling machine perfected by the Rock Tunneling Machine Co., of New York City.

Read the letter from the president of this company—the Radbore Head helped him materially in making his invention a success.

It was the Radbore Head which drilled square holes in chrome-vanadium steel—see photographs of parts below—it was the Radbore Head which did what other equipment could not.

Apply Radbore principles to your square or rectangular hole problems—Radbore Engineers will help you point out the way.

The new interesting Radbore Booklet is free on request. Write.

LAWSON & CO. INC.
90 West St. New York City



These photographs show parts drilled by the Radbore Head—2 in. square hole in 20 minutes in chrome-vanadium steel.



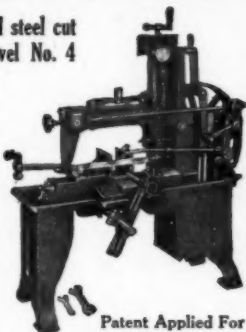
Cuts 6-in. Steel In 10 Minutes

Smaller sizes of cold rolled steel cut in proportion by the Marvel No. 4

—a high grade, improved tool with the speed, accuracy and convenience that insures bed-rock economy.

Cuts on the draw stroke and lifts free of the cut on the return. A graduated feed wheel gives any desired pressure on the saw blade.

Also other hack saws, punches and shears. Write for circulars.



Patent Applied For

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave.
CHICAGO

Peter Bros. Metal Cutter

Makes a Straight, Smooth Cut

through high speed or any hardened steel, broken reamers, taps, forming tools, etc., or through copper or brass tubing, aluminum or other relatively soft metals, so quickly that it costs next to nothing.

Doesn't draw the temper. Only 1-16th inch waste. No loss, either in time, labor or material, in grinding rough or broken ends to shape.

8" Size \$17.50, with C. S.

Splendid for tool room. Cuts high-speed steel up to $\frac{1}{2}$ " square.

12" Size \$44, with C. S.

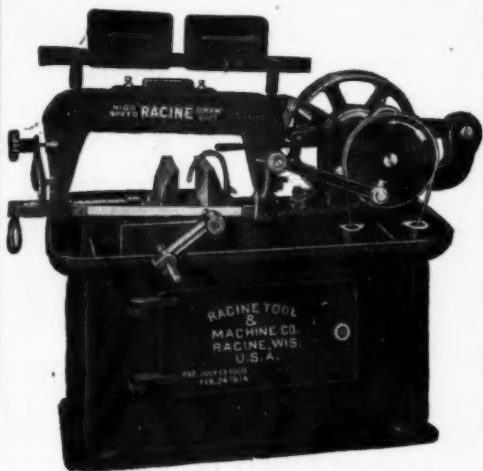
Cuts up to 2" diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.





Why Is It

That so many large shops are now equipped and being equipped with

The Newly Improved Racine High Speed, Metal-Cutting Machine?

FOR MANY GOOD REASONS—among others—because for speed, accuracy, economy and ease of operation THE RACINE cannot be surpassed. You MAY NEED ONE NOW. We will send a RACINE on any trial basis that is fair. WRITE US or any good dealer.

Racine Tool & Machine Co.

1500 Junction Ave. S., Racine, Wis., U. S. A.

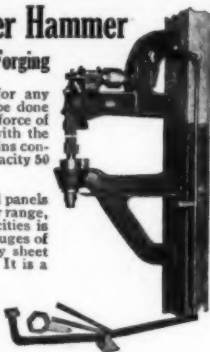
"Quickwork" Power Hammer

For Metal Working and Light Forging

Wonderfully handy and efficient for any work, including forging that can be done with a light power hammer. The force of the blow is accurately controlled with the foot lever, while its rapidity remains constant, a feature which gives it a capacity 50 per cent greater than any other.

Designed for convexed or concaved panels for auto bodies, it has a much wider range, and in its various sizes and capacities is adapted to working the heavier gauges of metal used by coppersmiths, heavy sheet iron workers, boiler makers, etc. It is a great time saver.

My "Quickwork" Catalog of Rotary Shears and Sheet Metal Machinery is Yours for the Asking. Write for it.



H. Collier Smith

815 Scotten Ave., - - - Detroit, Mich.

Cuts Any Shape of Sheet Metal

**Much Cleaner than any Rotary Shear
At a Speed of 20 to 30 in. a Minute**



The New Gray Sheet Metal Cutter

It cuts intricate shapes that are impossible with any other device. The accompanying illustration gives some idea of its remarkable range.

It leaves the metal flat, with clean, uncrimped edges. Capacity, 3-16-in. steel plate.

It is the workman's right bower in experimental work.

Don't hesitate to ask questions. Happy to furnish information.

W. J. SAVAGE CO., Inc., Knoxville, Tenn.

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

Manufacturers Of

Metal Sawing Machines

Made in five sizes, to cover every manufacturing requirement. Their thin milling saws combine high speed with the closest economy in high-priced steel.

Automatic Saw Sharpeners

Made in two sizes, for saws up to 15" and 24" in diameter. They grind and bevel at one operation the high and low tooth type milling saw.

Die Filing Machines

Made in two sizes, for the accurate filing of dies, punches, metal patterns, jigs and special gauges, and for filing duplicate parts requiring a close finish.

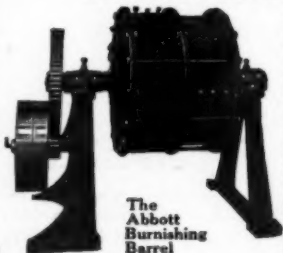
Universal Die Shaper

For die making and general tool room work. Operates both shaper ram and milling spindle at any angle.

**When considering this class of equipment,
would appreciate being consulted.**

Burnishing Metal Parts

At a Cent on the Dollar



The
Abbott
Burnishing
Barrel

You will stop buffing small metal parts one at a time when you know more about the Abbott Steel Ball process, which burnishes by the bushel.

It saves wonderfully in cost, it eliminates spoilage or breakage of delicate parts, and it gives an even and brighter luster.

Our copyrighted booklet explains. It is yours for the asking. Also send samples for burnishing and cost estimate, if you wish.

The biggest money saver on the market for its cost

The Abbott Ball Company

Elmwood District, Hartford, Conn.



DON'T Turn Tapers Without a Hartford Taper Gage

They cost so little
They save much time
They insure accuracy

32 of our Taper Gages are now used by one concern alone in its various departments. First they bought one as an experiment, and they found that it saved time and insured accuracy to such an extent that they purchased 31 more.

A little, inexpensive tool which brings results like that is well worth looking into. Don't you think so?

Write now, and you CAN'T forget it

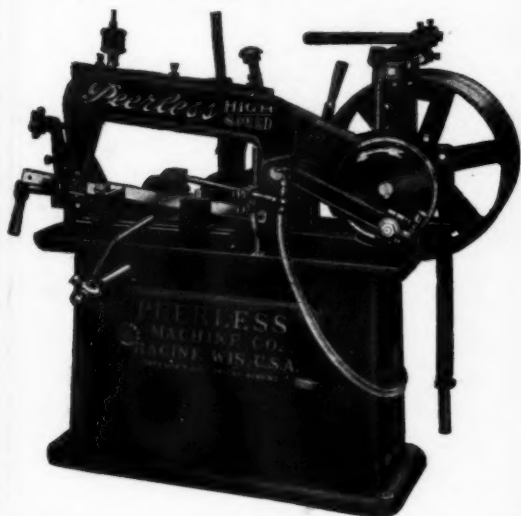
Hartford Special Machinery Co.

285 Homestead Ave.,

Hartford, Conn.

"100% Better, Faster and More Reliable

**than any Sawing Machine we have ever used;
we have had almost all makes of Sawing
Machines manufactured."**



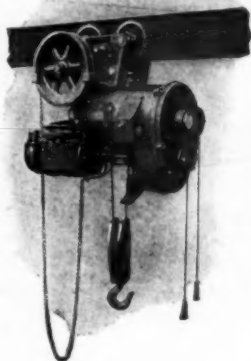
Just what a customer in Toledo, Ohio, reports after a thirty days' trial.

You don't have to take anybody's word for it, try it out under your own conditions. You are under no obligations if it fails,—remember we also pay the freight both ways.

Not only 100% more production, but saves 100% floor space. These problems have handicapped many manufacturers for some time. They can now readily be solved by the Peerless High Speed Heavy Duty Metal Cutting Saw.

Write us for complete description and references. Some of these machines may be working in your vicinity.

Peerless Machine Company
1609 Racine Street, RACINE, WISCONSIN



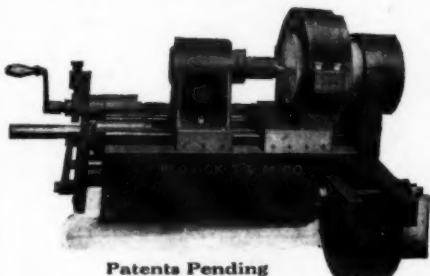
***A type "U" Hoist in your plant
will replace from 10 to 15
laborers—and it will pay for
itself in less than 90 days.***

***Built in sizes from $\frac{1}{2}$ Ton to
6 Ton capacity.***

We'll be glad to mail you Bulletin 301-BH and prices.

PAWLING & HARNISCHFEGER CO.
MILWAUKEE WISCONSIN

The Pedrick Portable Crank Pin Turner



Patents Pending

The descriptive circular contains a dozen clear illustrations, showing some of the various uses of this up-to-date, versatile machine under working conditions. Write for a copy.

It is much more than a tool for turning crank pins. It is practically an accurate, portable lathe, adapted to the uses to which such a machine can be put—turning shafts, journals and axles; reboring crank pin holes; truing up large shafts aboard ship, etc., etc.

Often it more than saves its cost in the first using, by being taken to the job and doing the work in position.

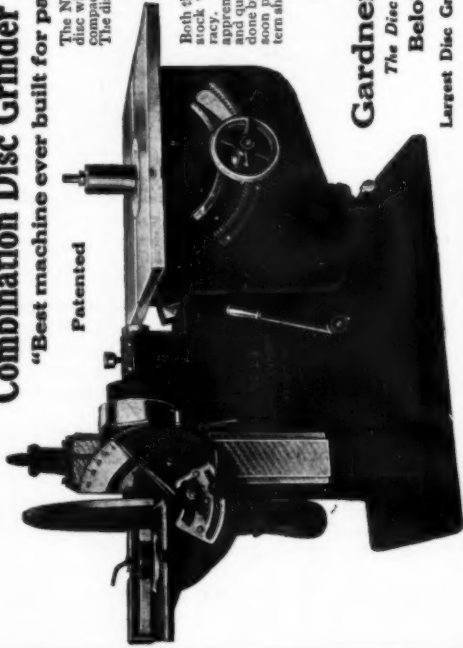
Send for illustrated circular, or for the complete catalog of Pedrick Portable Crank Pin Turners, Millers, Boring Bars, Pipe Benders, Etc.

Pedrick Tool & Machine Co.
3644 N. Lawrence St., Philadelphia, Penn.

Combination Disc Grinder & Roll Sander

"Best machine ever built for pattern shop use"

Patented



The No. 20 Gardner combines both the disc wheel and the sanding roll into a compact, sturdy and accurate machine. The disc wheel is used for producing flat surfaces and external curves; the sanding roll perfects internal curves which have been roughed out on a band saw.

Both this disc wheel and the roll remove stock with extreme rapidity and accuracy. With this machine at hand your apprentice boy can do, with greater speed and quality, much of the work formerly done by your best man. A Gardner No. 20 soon pays for itself in any modern pattern shop working four or more men.

Get the details today

Gardner Machine Co.

The Disc Grinding Authorities

Beloit, Wisconsin

Largest Disc Grinder Builders in the World



The *Greenfield*

For Special Work, Tools, Jigs, etc.

This Universal Grinder is just the machine needed in many of the shops engaged in equipping for the manufacture of special lines. It is an all-around grinder and will handle about any kind of a job that comes within its range.

It will turn out accurate, dependable work. Also, we believe we are perfectly correct in stating that we furnish this machine with a larger and more complete set of attachments than can be had for any grinder selling at anything like the same price.

We also build Plain Grinding Machines for production work

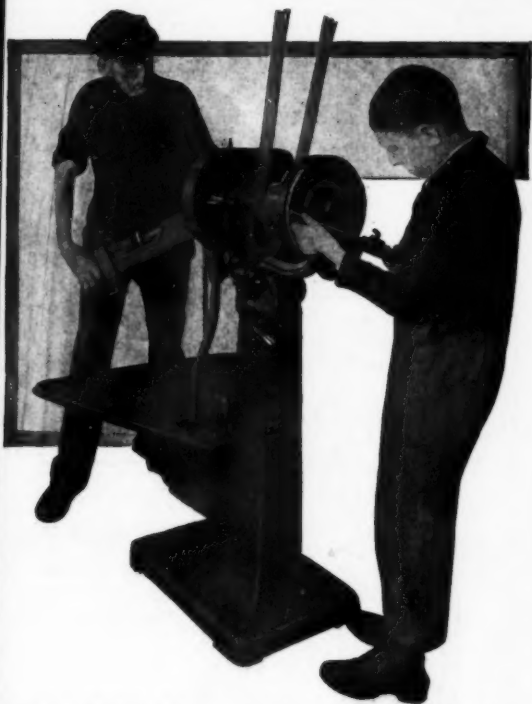
Greenfield Machine Company
Greenfield, Mass., U. S. A.



HERE is a good, solid Emery
Grinder—ring oiling bear-
ings, carries 14x2 wheel. Other
sizes in stock.

Write for prices

E. O. PARTRIDGE
2041-49 W. Lake St., Chicago, Ill.



Style WPL New Yankee Drill Grinder

(Capacity, No. 60 to 2¼")

Any BOY in your shop can grind a drill better and quicker on a new Yankee than your most skilled mechanic can do it by hand.

Catalog on Request

Wilmarth & Morman Co.

2185 Monroe Ave., N. W.

Grand Rapids, Mich., U. S. A.

Hydraulic Machinery

**Heavy and Medium
Pressures**

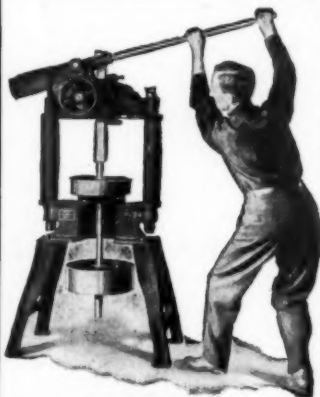
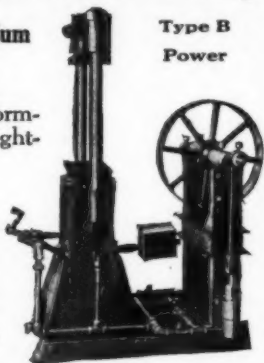
For Broaching, Form-
ing, Bending, Straight-
ening, etc.

**Presses for All
Purposes**

Write for catalog

Lourie Mfg. Co.
Springfield, Ill.

**Type B
Power**



No. 24 Press

**Efficient
Equipment
Atlas Presses**

for building and repair-
ing automobiles and
general machine shop
operations requiring
pressure up to 25 tons
and centering capacity
up to 38 inches.
For driving mandrels;
bending and straighten-
ing, broaching, emboss-
ing with dies, setting
bushings and many
other every day manu-
facturing jobs, there is an
Atlas Press. All sizes
for all purposes. *It will
pay you to investigate.*

Atlas Press Co.
317 N. Park Street,
Kalamazoo, Mich., U. S. A.

WEAVER

Forcing Press

Capacity 20 Tons

Strong—Roomy—Light



THE BALL BEARING HAND WHEEL enables the screw to be run its entire range of 12 inches in less than 10 seconds.

5-inch, 9-pound channel steel frame; 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (^{32-in.}Width) \$56.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois

A Wonderful Combination

In Riveting



- | | | |
|---|--------------------|---|
| { | Speed: | one rivet per second. |
| | Uniformity: | each rivet headed with same degree of tightness or looseness as desired. |
| | Finish: | perfectly formed rivet heads, highly polished surface, no hammer or tool marks shown. |

Grant Noiseless Rivet Spinning Machines, are the only machines built that will accomplish the above.

Catalog ?

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Combined Shaper and Slotter

Big in Capacity—Small in Price

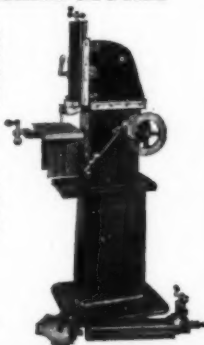
This accurate, well-built tool, while designed for small work only, has the essential features of larger machines. It is proving a big cost reducer on tools, dies, models, etc., and in shaping and slotting all kinds of light work.

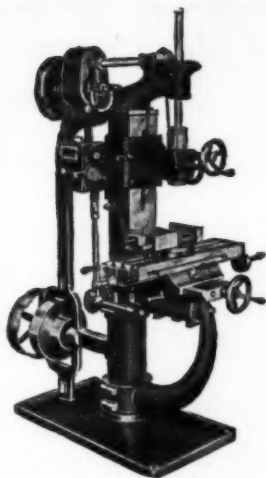
The Improved "Rhodes"

with vertical attachment as shown, is a two-in-one horizontal and vertical machine, covering a wide range of accurate machining. The low price of this efficient tool puts it within reach of even the smallest shop.

Send for description today

Rhodes Mfg. Co.
Hartford, Conn.





This Knight Lengthens the Day

Saves 20 to 50% of Time on Hard Machining

Knight Milling and Drilling Machines have the convenience and capacity of 2 or 3 ordinary machines. They have no equal for quick and accurate work on dies, jigs, metal patterns, etc. They mill, bore and drill at any angle with only one setting of the work.

The Knight Duplex Miller

is designed for light work that can be milled on two sides at a time, such as frames of typewriters, cash registers, etc.; also good for milling flats, squares, and hexagons on shafts, tools and special nuts.

It is expensive to be without these machines

W. B. Knight Machinery Co.
St. Louis, Mo.

Time Saver

For Milling

Internal Keyseats

Let us tell you
what this tool
will do for you.

Get Catalog O.

National Machine Tool Company

2268 Spring Grove Ave.,

Cincinnati, Ohio



BECAUSE so many people have asked us just why this mandrel offers so much in the way of shop saving and just how it is used most effectively, we have issued a very practical treatise on its use.

This extremely handy little booklet will give you more real meat in a fifteen-minute study than we can tell you in reams of advertising here.

When you have gone over your copy—which we will send you on request—you will realize why the **NICHOLSON EXPANDING MANDREL** has become so tremendous a production factor in American machine shops.

NICHOLSON
Expanding Mandrel

W. H. Nicholson & Co.
117 Oregon Street
WILKES-BARRE, PA.



Easier to Drill Big Pieces

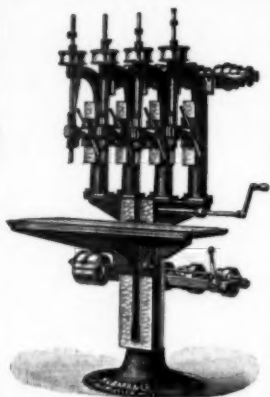
T. & F. "Sensitive Radials" Reduce Costs

The exceptional convenience of this drilling machine enables the operator to save time at every move. Manufacturers are doubling and trebling their outputs with the rapid T. & F. By using drilling heads of different types it can be made to cover nearly all drilling requirements within its range.

Automatic power feed, lever feed, high speed sensitive or tapping heads may be used, either singly or in combination. Drills up to $\frac{3}{4}$ " in hard-to-handle pieces, and does it at a lower cost per hole.

Drilling records of this efficient and economical machine on request

The Taylor & Fenn Company
Hartford, Conn.



The Well Known
H. G. Barr Line
 of
Sensitive Drills

with one to six
 spindles.

*Send for catalog
 if interested*

Francis Reed Co.

43 Hammond St.
 Worcester, Mass.

Rearwin Die Filing Machines



*Increases the Output
 Decreases the Cost*

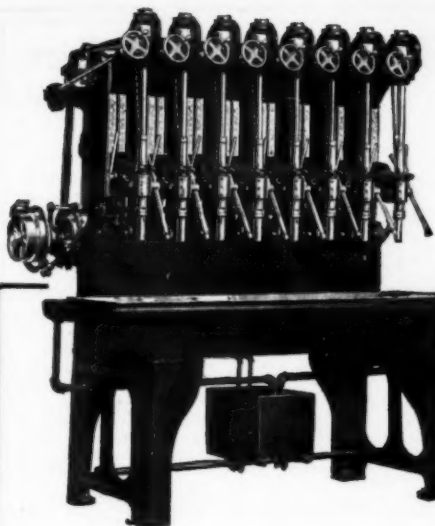
Does both large and small work. Any standard file 4" to 12" in length can be used. Stroke adjusted from 1" to 7". File releases on up-stroke. Shaft or motor drive gives rapid production and a uniform degree of clearance in your dies or other work where straight filing is required. Hack saws can be used for making templates.

Adjustable Speed Stroke & Table

*Descriptive circulars and
 prices sent on request.*

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.



Henry & Wright Drilling Machines

Best in Theory—Best in Fact

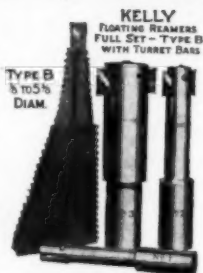
Theoretically, their gearless power transmission, under perfect control and with frictionless bearings, insures a greater drilling capacity.

In practice, many of the largest drilling plants have standardized on Henry & Wrights, because exhaustive tests have fully satisfied them of the *correctness* of the theory, one concern alone having over 2,300 H. & W. spindles in operation.

Write for description—1 to 8 spindles—for $\frac{3}{4}$ " drills and smaller, and for our free Speed and Feed Chart

The Henry & Wright Mfg. Co.
760 Windsor St., Hartford, Conn.

Kelly PRODUCTION Tools



The outfit shown in cut, with three turret bars and 36 type B reamers, gives any diameter in ten thousandths from 15-16ths to 5 1/2 inches. Each reamer has an adjustment of 1/4-inch.

Kelly Boring and Reaming Tools are made for any diameter from 9-16ths to 12 inches and larger.

Write for the Catalog

THE KELLY REAMER CO.
CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agents. 40 Domestic Agencies.

When Your Taps Break—

A Walton Tap Extractor Saves the Day

This handy, inexpensive tool eliminates the loss from removing taps in the old way. It often pays for itself the first time it is used.



So simple in construction that any one can use it. A very small sum will prepare you against that annoying situation—a broken tap! * * *

Write for 60-day free trial, or folder, or both

THE WALTON CO., Hartford, Conn.

A Chicago Manufacturer

Purchased

**Two (2) Leland-Gifford Co.
High Speed Drilling Machines**

After putting the first one in operation, his production was so high that he found he did not need the second one and asked to return it.

*This machine described
in our Bulletin No. 502*

Leland-Gifford Co.
Worcester, Mass., U. S. A.



Globe Collet Chuck For Lathes

**Superseding the old Draw-in Collet Chuck
Collet Manipulated from Operator's Position**



With a Globe Collet Chuck on his lathe, the operator does not leave his position to tighten or release the collet.

It is simple, easily attached and made of the best materials; grips stock firmly the full length of collet.

This is worth careful investigation. Will you write today?

Globe Engineering Company

412 Traction Bldg., Cincinnati, Ohio

Beaudry Hammers



For General Forging

**Saves Fuel, Time
and Labor.**

**Cuts Forging Costs
in Two.**

Belt or Motor Driven

Beaudry & Co., Inc.

**141 Milk St.,
Boston, Mass.**



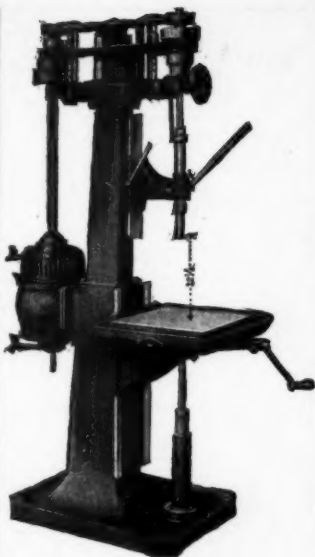
FEATURES

Quick
Change Speed
Change in 2 seconds

Most
Efficient Drive
No belt troubles

Safety First
All parts protected

Heaviest
Drill Made
Yet very sensitive
All Ball Bearings



Two Seconds Is Ample Time
to change speed on the

Sipp Quick-Change-Speed Drill

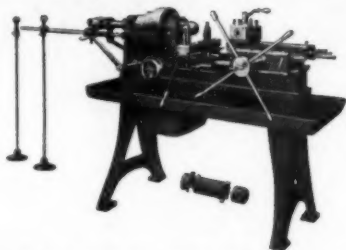
The reason why efficient speeds are not used on most drills is that it is so much trouble to change the operatives will not do it.

You can change speed on a SIPP in 2 seconds by simply shifting a lever. That's one reason why it pays to use a SIPP.

Write for details.

The Sipp Machine Company
Keen St., Paterson, N. J.

Turret Lathes and Screw Machines



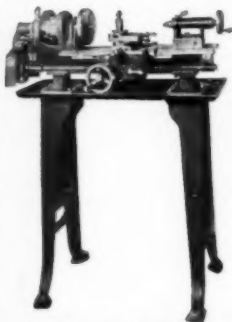
built and designed to give maximum permanent accuracy and efficiency. Reasonably priced.

Himoff Machine Co., Inc.

134 Mott Street,

New York, U. S. A.

A Small Lathe of Great Power



**New Dalton 6-in.
Actual Swing 7 $\frac{1}{4}$ -in.**

It has the accuracy requisite for the finest precision work, and the power and strength for work often done on 14" lathes. Screw cutting, 3 to 144 per inch; taper attachment.

Manufacturers find a battery of Daltons unusually effective for quantity production.

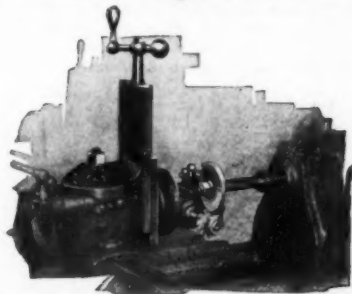
Furnished on standard legs as shown in cut, with cabinet leg, or as a bench lathe. Electric drive, power driven or foot power.

Write for Bulletin B-602

**DALTON MACHINE CO., Inc., 1910-15 Park Av.
NEW YORK**

**A Combined Grinder, Gear
Cutter, Miller, Drill, Etc.**

In One Inexpensive Tool



**Garrett Lathe Attachment—Showing One of its Many Uses
Sharpening Cutters for Cutting Gears**

In small shops, which are not equipped with a lot of expensive tools, the Garrett Attachment for the lathe or drill press is almost a priceless boon. It can be attached to any make of lathe in a few minutes, its work is absolutely accurate, and it prevents having many a job done "outside," saving delays and cost.

In large shops it is the all-around handy tool. Can be used on many a rush job when the big machines are busy, saving its cost over and over by keeping things moving.

In every shop, whether large or small, there is the need for at least one general tool which can be adapted quickly to many classes of work. And when this can be secured in the inexpensive Garrett Combination Attachment, the opportunity is too good to be overlooked.

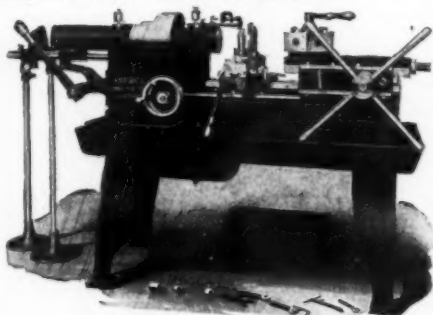
*Just send us your name and address—that's all
We'll do the rest, with full information and prices*

**Garrett Attachment Company
Nashville, Tenn.**

**Don't Take Our Word for it
When We Say the Heavy Pattern**

Pierce Turret Screw Machine

—will do larger work than any other of equivalent size, will do that or any other work as fast or faster, and will do it with a degree of accuracy that no machine of this type has ever surpassed.



Capacity, 1 1-16-in. Diameter by 8-in. Long.

**Now made with White Metal Bearings, containing no lead whatever.
Countershaft pulls 15 H. P.; others slip under pull of 5 to 10 H. P.**

We want to send you our literature descriptive of this heavy pattern screw machine with plain head, which will make clear to the practical mechanic why the Pierce has exceptional range and capacity for its size, and why we can claim for it unusual simplicity, convenience and accuracy. All we want now is for you to know about it, and you will do the rest, for you will find it a really remarkable machine in the production of actual results.

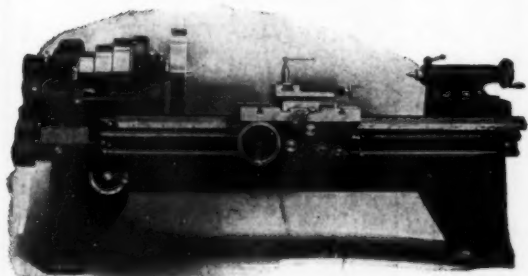
Won't you write today for the description?

Pierce Machine Tool Company

617 W. Jackson Blvd., Chicago, Ill.

WALCOTT LATHES

Made in 14, 16, 18, 20, 26 and 28" sizes



For
Tool-Room and
Factory

Walcott Lathe Co.
Jackson, Michigan

JOHNSON



Bushings and Bearings

mean better service—longer wear,
prompt deliveries.

No matter whether you make your own
bushings or not we can produce some
data which will interest you.

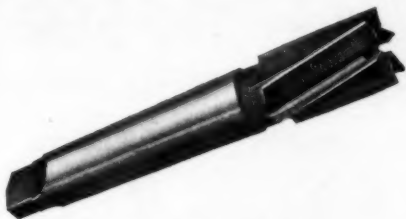
Send blue prints and specifications for a specimen Johnson quotation.

JOHNSON BRONZE COMPANY

Bushing Specialists

FORMERLY—THE AMERICAN CAR & SHIP HDW. MFG. CO.
WORKS AND GENERAL OFFICES
NEW CASTLE, PA.

SALES OFFICES: Buffalo, Cleveland, Detroit, Cincinnati, Chicago, New York



To Maintain The Maximum Capacity Of Your Milling Machines

Use **Brown & Sharpe Cutters**

Correctly designed, made from the best of steel, properly heat treated and rigidly tested, B. & S. Cutters come to you, prepared for hard, long service.

More than 45 varieties and 5000 sizes in stock cutters. Made to order singly or in gangs in any practical shape or combination.

Catalogue on request

Brown & Sharpe Mfg. Co.
Providence, R. I.
40 Years Cutter-Making Experience

The Jacobs **Improved Drill Chuck**



Patented Sept. 16, 1902

Manufactured by
The Jacobs Manufacturing Co.
Hartford, Conn., U. S. A.



We manufacture a great variety of
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

Let us send you our Catalog

The Cushman Chuck Co.
Established 1862 *Hartford, Conn.*

SKINNER

Independent Lathe Chucks

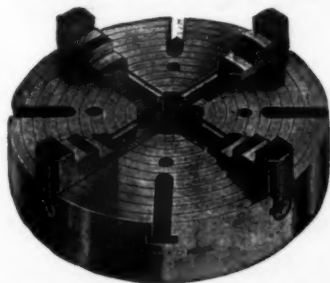
Iron and Steel

Fig. 900

Fig. 1900

Bodies

**With Solid Reversible Jaws
Hardened Steel Bearings**



For High Speed Work

The last word in chuck construction.

Wide jaws; hardened steel thrust bearings; adjusting screws of large diameter, threaded full length; jaws ground after hardening, etc.

*Descriptive matter and new prices on request—
Write us today*

The Skinner Chuck Company

Factory and Main Office, New Britain, Conn.

New York Office
94 Reade Street

San Francisco Office
Rialto Building

London Office
149 Queen Victoria St.

Will You Let Us Show You?

Sweetland Chuck Service Means Greater Efficiency

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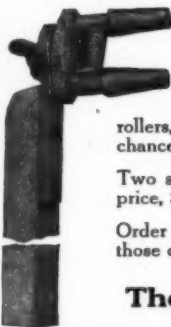


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The Hoggson & Pettis Mfg. Co.
New Haven, Conn., U. S. A.

\$1,000 Accidents Do Not Happen

Where "Safety First" Belt Sticks Are Used



Make belt shifting as safe and easy as the gear shifting of an auto. "Safety First" Belt Sticks prevent accidents to your men while putting belts on moving pulleys. With three rollers, two of them tapered, there is no chance of the hook getting caught.

Two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

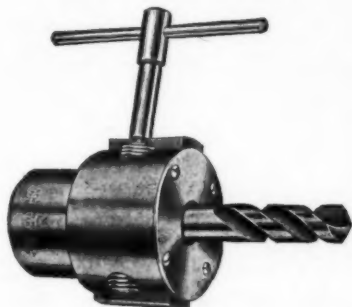
Order a few on trial now and side-track those costly accidents permanently.

The Ready Tool Co.
Bridgeport, Conn.

The **Union Drill Chuck**

Has Many Good Points to Recommend It.

**It is an Accurate Chuck and All Parts
Are Strong and Durable**



The jaws and operating screw are made of a high grade of tool steel, specially selected for its wearing qualities. In addition the Chuck is provided with a positive drive feature, which if properly used will prevent the drill from slipping and add to the life of the Chuck.

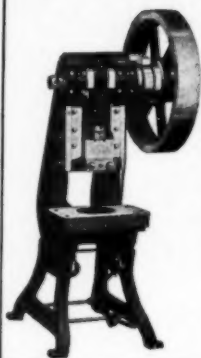
Union Manufacturing Co.

**New York Office,
26 Cortlandt St.**

New Britain, Conn.

Makers of a Complete Line of Chucks

Here Is A Press



With Plenty of Steam
Back of THE PUNCH

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and
inclinable types. Their great
power backed by rigid design
enable them to do the work
you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.

You Are Wasting Time!

If you are paying a man to
swing a sledge on your light tool
dressing, miscellaneous forging and
blacksmithing, cut out that expense
now by installing a Barr pneumatic
light forging hammer.

The cost is small! The results
in time saved and production in-
creased will please you.

Write for Circular 10 H

H. Edsil Barr, Mfr.
Erie, Penna.





Part of Locker Equipment installed by Terrell's Equipment Co.

Terrell's Sanitary Steel Lockers

No one claims that wooden lockers are as satisfactory in any way as are Terrell's Sanitary Steel Lockers.

While their number is decreasing, yet there are still thousands of factories equipped with wooden lockers because of a mistaken idea of their economy.

No doubt many of those factory owners would be surprised if they knew how little more steel lockers cost in the first place. And they would be still more surprised if they figured the great economy of steel as a permanent investment—if they estimated their equipment on the same permanent investment basis as they do their buildings.

*That is why we court the fullest investigation
Tell us your needs and let us submit estimates*

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

Terrell's Unit System of Steel Shelving is another good thing.

Vul-Cot Fibre



Vul-Cot Fibre knife switches—in which the cross piece and handle are Vul-Cot Fibre—are primarily machine-tool switches, because they can be absolutely depended upon to insulate perfectly against prevailing voltages, and their exceptional wearing qualities adapt them particularly to rough handling.

We will gladly give information on Vul-Cot Fibre for insulating purposes or for gears, pinions, friction drives, handles, etc.

Complete stock for immediate shipment at Chicago

AMERICAN VULCANIZED FIBRE CO.
560-570 Equitable Bldg., Wilmington, Delaware

Steel Handles



For Power Tools, etc.
We can save you money.

The Price, on account of quantity production, is below the manufacturing cost of cast iron or forged handles.

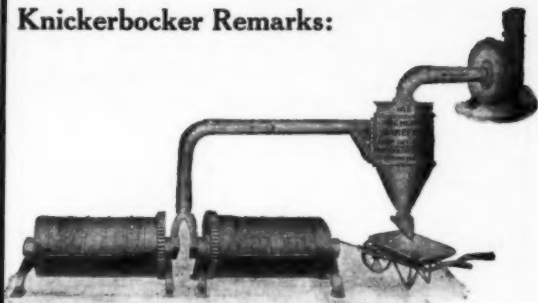
In Quality there is no comparison. They are accurate, highly finished, and ready to attach. Let us show you.

Write for Catalog of Standard Handles, prices and discount.

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio



Knickerbocker Remarks:



Morse "Rarefied" Dust Collectors

Get Away With the Dust



THAT'S THEIR specialty, and they do it thoroly and economically. No matter how cutting, grinding or heavy the dust—whether raised by emery and polishing wheels, sand blasts or tumbling barrels—the Morse does it well and at lowest cost.

The Collector is located between the source of dust supply and the fan, so that the fan *draws* the air through the collector and maintains a constant vacuum tendency—the "rarefied" principle—in the collector casing. The dust is collected and automatically discharged before the air reaches the fan. This prevents abrasion of fan parts, reduces repairs to a minimum, and gives long life to the fan.

*The complete story is told in our free Booklet.
Write for it and get posted.*

The Knickerbocker Company
Jackson, Michigan

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels

" No. 0 32 " "

" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table

" No. 9 Tilting Table

" No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.

12, 16, 20, 24 and 30 in., 7 ft. tables and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard, Chicago

Steel Die

Embossed Stationery

looks like solid prosperity. The psychology of creating a favorable impression by mail must necessarily include impressive stationery—neither cheap nor showy—just neat and rich. For that purpose our Steel Die Embossed Stationery is unsurpassed.

It is probably not as expensive as you think

Ask for free Specimen Book and Prices

American Embossing Co.

192-96 Seneca St.,

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This department is exclusively for those desiring machine, press or die work on contract. Advertisements must be set in uniform style, as shown, and without other display, or any variation in arrangement or in kind or size of type. The heading must express, as nearly as possible, the particular sort of work wanted, in order that any facilities offered may be easily found. Rates: one-eighth page, three months, \$12; one year, \$40.

Stampings by Contract

We have complete facilities for stamping, drawing and forming of sheet metal. Our presses are best suited for medium and large size stampings. We are equipped for baked enameling, spot and acetylene welding. Send us sample, sketch or blue-print for estimate. **The New Britain Machine Co., New Britain, Conn.**

Dies, Tools—General Machine Work

We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876. **Chicago Die & Machine Works, 415 N. Carpenter St., Chicago, Ill.**

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Give us the amount of pieces required of each style. The larger the quantities the closer we can figure. We require absolutely accurate work in our own manufacturing departments, and our rigid inspection service is at your command. **Harvard Electric Co., 527 W. Van Buren St., Chicago, Ill.**

Screw Machine Products—Brass Castings

Right prices. Prompt deliveries. High-grade work. Send us samples or blue-prints for quotations. **Hill Pump Valve Co., Archer Avenue, Canal & 23rd Sts., Chicago, Ill.**

Special Machinery and Punch Press Work

Dies, tools and general machine work. Manufacturers of metal specialties. We are equipped to handle your requirements to your best advantage. **Illinois Die & Tool Works, 162 N. Desplaines St., Chicago, Ill.**

Brass, Bronze and Aluminum Castings

Castings of every description made in brass, bronze or aluminum. Brass finishing, screw machine and punch press products. Polishing and electro-plating. We are fully equipped to furnish complete brass and metal parts of every description. **Kelly Brass Works, 226-232 W. Ontario St., Chicago, Ill.**

Inventions Perfected

Years of experience in this work enable me to render you a satisfactory service. Special and automatic machinery a specialty. **R. D. King, Consulting Engineer, 519 Monadnock Bldg., Chicago, Ill.**

CONTRACT WORK WANTED

Patterns and Models, Wood or Metal

Quality, service and price combined are seldom obtainable. An efficient organization makes this possible here. **W. J. Nobach Pattern Works, 522-524 West Jackson Blvd., Chicago, Ill.**

Sheet Metal Stamping General Engraving, Die and Tool Work

Brass and Steel Dies, Steel Stamps, etc.
E. H. Owen & Co., 101-109 N. Jefferson St., Chicago, Ill.

Brass Finishing—Metal Patterns—Screw Mach. Products

Special brass work of every description, metal patterns and screw machine products. With a well-lighted shop, good tools and good mechanics, we believe we can satisfy you with our service. **B. W. Pokorney & Co., 132-134 S. Clinton St., Chicago, Ill.**

Sheet Metal Stamping, Dies and Tools

We solicit your inquiry for sheet metal stamping. Manufacturing a specialty. **Walter L. Schultz, 29 S. Clinton St., Chicago, Ill.**

Gray Iron Castings. Real Quality.

Concord Gray Iron Castings, heavy, medium and light, are made strictly according to chemical analysis. Quality and service are guaranteed to be unexcelled. We specialize in Machinery Castings. Write us today, or better still, send us some of your patterns for trial order. **The Concord Foundry Company, Elkhart, Indiana. Detroit Representative, E. F. Wilkinson, 393 Vinewood Ave.**

Gray Iron, Brass and Aluminum Castings. Skilled Pattern Work. Nickel Plating and Sheet Metal Work.

Let us estimate on your light and heavy gray iron, brass or aluminum castings, pattern work, nickel plating, sheet iron work and light sheet iron stamping. Reliable factory conditions, and best shipping facilities. **H. W. Clark Co., Mattoon, Ill.**

Jigs, Dies, Tools—Stampings and Electro-Plating

Rockford Metal Specialty Co., Rockford, Ill.

CONTRACT WORK WANTED

Accurate Machine Tool Work

We have a very complete outfit of modern machinery and a force of highly skilled workmen which we could make available part of the time for outside work. We would like to get in touch with reliable concerns desiring to contract for accurate machine tool work. **Campbell Electric Company, Lynn, Mass.**

High Grade Machine Manufacturing

We are equipped to manufacture high grade specialties and intricate machines, such as typewriters, adding machines, etc. Can improve a defective design, producing a machine that will work and sell. We especially desire problems of this kind. Large facilities for small stampings. **Grand Rapids Brass Co., 66-90 Scribner Av., Grand Rapids, Mich.**

Tool and Die Work

Every kind, for which we have the machinery and skilled labor to produce results. We are equipped also for special machine work. Our particular specialty is high grade service. Can you use that kind? **Manhattan Brass Works, Grand Rapids, Mich.**

Sheet Metal Stamping and Manufacturing

We solicit your inquiries for light sheet metal stamping and manufacturing of specialties. **O. D. Johnson Stamping Works, Batavia, N. Y.**

Die Work

Exceptional facilities for making dies and tools and building machinery. **Titchener Iron Works, Binghamton, N. Y.**

We'll Make It—Your Metal or Wood Specialty

We have unusual facilities for producing specialties in both metal and wood. Experimental and model work, pattern making. Jigs, dies, sheet metal work. Write for details. **Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City.**

Dies, Gauges, Jigs and Fixtures

Model and experimental work; special machinery built to order; contract manufacturing. Finished parts, of intricate shapes, accurately produced from electrolytic copper. **A. N. Van Deman, 95 William St., New York City.**

Tools—Dies—Jigs—General Machine Work

Screw machine products. Efficient service and prompt deliveries. Send us your blueprints for quotations. **Commercial Motor Car Co., Inc., Owego, Tioga County, N. Y.**

CONTRACT WORK WANTED

General Machine Shop and Foundry Work

We are prepared to handle large and small work in our foundry and shops. Cheap freight rate via Clyde Line to New York. Prompt deliveries. Send us your drawings and inquiries and we shall give you our best prices. **Cape Fear Machine Works, Wilmington, N. C.**

General Machine Work—Dies, Tools—Special Machinery

We are equipped to build machines of every description—sheet metal punches and dies—tools, models and jigs—long brake dies. Our object is high grade service. Send b. p. for estimate. **Canton Machine Shop, 320 Rex Ave., Canton, Ohio.**

Simplified Design

If your product is too complicated, you are paying a tax you can avoid. The very beginning of increased production is simple design. Let me comb over your designs. I can show results. **W. L. Schellenbach, Engineer, First National Bank Building, Cincinnati, Ohio.**

General Machine Shop and Foundry Work

Fifty years' successful operation our record. We have a large and well equipped machine shop, also foundry. Plenty skilled labor. Can handle large and small work. Would like contract for a number of large machines, also for automobile parts and other machinery. **Southern Engine & Boiler Works, Jackson, Tenn.**

Lathe Work, Pipe Threading, Forge Work, Etc.

Machine work for lathes; cutting and threading pipe up to 18"; sheet iron and heavy plate work up to 1"; boilers, tanks, smoke stacks, etc.; also oxygen welding and cutting, and work for electric drill and hammer. Good facilities, low labor cost, prompt service. **F. O. Ambrose, 111-113 N. Main St., Janesville, Wis.**

Pressed and Stamped Steel Parts

It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81". Send samples or blue prints for estimate. **Geuder, Paeschke & Frey Co., Milwaukee, Wis., 1325-1700 St. Paul Av.**

Do You Want Contract Work?

If so, state in one of these spaces what you are prepared to do, and it will go into more manufacturing plants than if published in every mechanical journal in this country. The cost is low for a service covering metal-working plants of all kinds everywhere in the United States. **A. H. Hitchcock, Publisher, 1220-1235 Caxton Building, Chicago.**

Want More Orders?

They are to be had for special contract work in machining, stamping, forging, casting, welding or any department of machine manufacturing. The problem is merely to bring the capacity and the demand for it together. If you have the idle capacity, and want work for it, the "Contract Work Wanted" department of the Tool List will help you to get in touch with machine-making plants everywhere in the United States. Its circulation among American metal working plants is country-wide. There is no other available means by which you can reach so many.

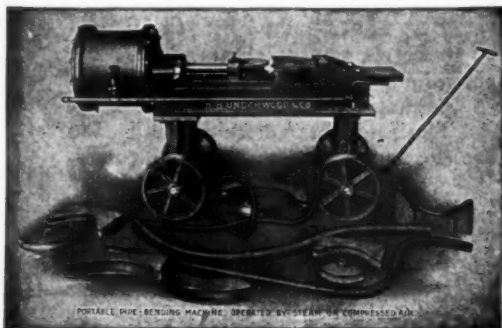
Don't let your equipment stand idle. That costs money—a lot more than it will cost you to find work for it. Write me for further information, and for a copy suggestion, which I shall be glad to make without cost or obligation.

A. H. Hitchcock, Publisher

Hitchcock's Machine Tool List
1220-1235 Caxton Building, Chicago, Ill.

Bends a 2-inch Pipe in 2 Minutes

Popular in Railway and General Repair Shops



UNDERWOOD'S Portable Pipe Bender bends any size up to 2½-in. cold, without flattening or splitting, and is reliable for all ordinary pipe bending requirements.

WORKS on 80 lbs. steam or air pressure. Puts a right angle bend in a 2-inch pipe in two minutes. The piston is forced back by a spiral spring, so that front head and piston rod require no packing. Dies are easily changed and adjusted.

WE HAVE been building Portable Tools and labor saving devices for over 45 years. Our line now includes:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; boring bar for lathe work; crank pin turners; reflex water glass grinders; rail saws; motors, etc.

Send for our Catalog—it tells of Economy

H. B. Underwood & Company

1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **40 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to the parties offering the machines for sale for prices and full descriptions. If you do not find listed what you require, use the post card inclosed with each book to make known your wants to the publisher.

FOR SALE BY

Clark Machinery Co.,

1302 Ontario Ave., Cleveland, O.

Blower, No. 1 Root, positive pressure.

Compressor, 10x12 Chicago.

Lathe, 48"x24" Enterprise, c. r.

Lathe, double head key lathe.

Magnetic separator, No. 1 Ding.

Miller, double end valve.

Miller, vertical, table 22"x54.

Riveter, 8" Shuster.

Screw machine, 24" Cleveland auto.

FOR SALE BY

Pelton Gasoline Engine Works,

Lyons, Iowa

MACHINE SHOP EQUIPMENT.

The entire machine shop equipment, consisting of lathes, planers, drill presses, keyseater, emery stands, motors, line shafting, pulleys, hangers, oxy-acetylene welding outfit, blacksmith forge tools, etc., also numerous small tools. A real bargain.

FOR SALE BY

Rockford Tool Company,

Rockford, Ill.

PLANER-NEW.

31"x31"x14' Powell high-speed planer, brand new, not yet off skids; 2 heads on cross rail; arranged for motor drive, with General Electric Co. 10 h. p. motor, 220 volts, a. c., 60 cycle. The entire outfit can be purchased at a reasonable figure, as it does not meet our requirements in size.

FOR SALE BY

The Fulton Tool Company,

Canal Fulton, Ohio

FUEL SYSTEM.

Pulverized coal fuel system for forge shop, complete with coal pulverizer. Capacity 18 to 25 heating furnaces. This system is now in successful operation at our Canal Fulton shops, and is offered for sale on account of the removal of our plant to Huntington, W. Va. Address inquiries to The Fulton Tool Company, Canal Fulton, Ohio.

FOR SALE BY

Wayne Machinery Co., Taylor St. & L. E. R. R., Fort Wayne, Ind.

Bolt cutter, 8" Acme.

Bolt cutter, 1" Acme.

Brake, 8" J. M. Robinson.

Drill, 16" Barnes, friction.

Drill, 12" Barnes, geared.

Drill, 14" Champion, geared.

Drill, 23" Springfield, b. g., p. f.

Drill, 22" Barnes, p. f., b. g.

Drill, 30" Snyder, p. f., b. g.

Gear cutter, Walcott.

Grinder, No. 1 Woodward & Rogers,

surface.

Lathe, 9" Barnes, foot power.

Lathe, 9x45" Rockford engine.

Lathe, 15"x54" American No. 1, brass.

Planer, 12"x12"x24" Wilkenson Co.

Planer, 24x24"x6" Silk Mch. Tool Co.

Riveter, No. 530 Prouty.

Riveter, 8" Shuster, rotary blow.

Screw machine, 16" P. & W., g. f. h.

Shaper, 16" Hendey.

Tire welder, No. 4 L. & A.

Welding machine, No. 6-A Toledo

electric butt welder.

New tools for any requirement.

SECOND-HAND MACHINERY

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

- | | |
|---|--|
| 14"x6' Blaisdell, p. r. | 18"x8' Bradford, c. r. & t. a. |
| 16"x6' Lathe & Morse, r. & f. | 18"x8' Bradford, c. r. |
| 16"x8' Lodge & Shipley, c. r. | 20"x6' New Haven, c. r. |
| 16"x8' Bullard, p. r. | 24"x8' Putnam, c. r. |
| 16"x8' Lodge & Shipley patent head,
g. c. g., pan bed. | 32"x18' Nixon, p. r. |
| 18"x6' Fitchburg, c. r. | 48"x26' Fifield, c. r., triple geared. |

FOX LATHES.

- | | |
|---|---------------------------------|
| 14"x6', square arbor, set-over tail-stock, (2). | 20" American, universal turret. |
|---|---------------------------------|

TURRET LATHES.

- | | |
|--|---|
| 18" Lodge & Davis, gear feed head, automatic chuck. | No. 7 Bardons & Oliver, gear feed head, with vertical forming attachment. |
| 14" W. & S. plain head. | 14" Lodge & Davis, plain head. |
| 28" Gisholt complete, motor driven, 110 or 220 d. c. | 21" Gisholt with t. a. |

MILLING MACHINES.

No. 8 Brainard, Lincoln type.

UPRIGHT DRILLS AND RADIALS.

- | | |
|-------------------------------|--|
| 5' Bickford, gear box, t. a. | 3' Mueller, cone driven. |
| 4' Bickford, gear box, t. a. | 3' arm Bickford, cone driven. |
| 3' arm Mueller, gear box. | 20" b. g. & p. f., s. b., (2). |
| 20", w. & l. fd., s. b., (2). | No. 4 type B. W. Sipp 4-spindle high-speed, (new). |
| Sensitive drills. | |

MULTIPLE DRILLING MACHINES.

- | | |
|--|--|
| Detroit 5-spindle horizontal semi-automatic. | 8-spindle 14" round head, Bausch & Harris, 1 1/2" dia. spindles. |
| 3 and 6-spindle sensitive. | |

PLANERS.

- | | |
|-----------------------------|------------------------------------|
| 48"x48"x10' Pond, 2 heads. | 26"x26"x 6' Whitcomb, single head. |
| 52"x52"x24' Betts, 2 heads. | 20"x20"x 3' spur planer. |

BORING MILLS.

- | | |
|--|---|
| 36" Barrett horizontal cylinder boring, (2). | 20" Colburn vertical boring and turning mill, 3-jaw combination chuck, table. |
| 34" Colburn vert. boring and turning mill, 3-jaw chuck, table. | Head plate boring lathe. |

GRINDERS.

- | | |
|--------------------------------|------------------------------|
| Warner & Swasey cock grinders. | Rowbottom, 16" discs. |
| Size "D" Gorton, 18" discs. | 14" & 20" wet grinders, (5). |
| No. 10 Besly, 18" discs. | |

SHAPERS.

- | | |
|--------------------------------|------------------------|
| 16" Fitchburg, traveling head. | 20" Walcott, friction. |
|--------------------------------|------------------------|

SCREW MACHINES.

- | | |
|----------------------------------|-------------------------------------|
| 14" Cleveland automatic, 3-hole. | No. 00 Brown & Sharpe automatic. |
| 2" Cleveland automatic, 5-hole. | No. 1 Bardons & Oliver, plain head, |
| No. 0 Brown & Sharpe automatic. | a. c., w. f. |
| 2" Hartford automatic, 5-hole. | |

MISCELLANEOUS.

- | | |
|---|---|
| Bolt cutter, 14" Wells, single head. | Keyseater, Morton, draw stroke. |
| Bolt cutter, 14" Acme, single head. | Oil separators, No. 150 Curtis, ball bearing, (2). |
| Bolt cutter, 14" Stockwell, sgle. hd. | Pipe machine, 4" Williams. |
| Cold saw, No. 11 Higley. | Profiler, 2 spindle, No. 2 Garvin, Wesson drive. |
| Cold saws, 12" Burke, (2). | Pulley lathe, 36" Stevens, with boring attachment. |
| Grinder, 16x50" Springfield, planer type. | Squaring shear, 12" Piqua Blower Co., No. 14 gauge cap., (new). |
| Grinder, internal, type "D. E." | |
| Hisey, 12" extension, 110 d. c. | |
| Grinder, tool post, type "B" Hisey, 110 d. c. | |

SECOND-HAND MACHINERY

FOR SALE BY

Henry Prentiss & Company, Inc., - **Singer Bldg., New York**
Formerly
Prentiss Tool & Supply Company,

BORING MILLS.

No. 1 Beaman & Smith, double hd. | 5" bar Beaman & Smith horizontal.
3 $\frac{1}{2}$ " Warner & Swasey, horizontal. | No. 1 Springfield spindle borer.

DRILLING MACHINES.

2-sp. Henry & Wright. | 28" Snyder, sliding head.
4-spindle Woodward & Rogers. | 4" Bickford plain radial.
4-spindle Barr. | 4 $\frac{1}{2}$ " Niles radial.
5-spindle Reed. | 5" American radial.
20" Prentice Bros., sliding head. | 6-spindle Gardam adjustable.
25" Snyder, sliding head. | 12-spindle Gardam, adjustable.

GRINDERS.

No. 1 Brown & Sharpe, internal. | Misch valve grinder.
Esen-Lucas saw grinder. | 3" Yankee, twist drill.
No. 4 Springfield, surface. | 12" Bristol rotary surface.

LATHES.

11"x 6' Star, c. r., p. c. f. | 18"x 8' American, c. r., q. c.
11"x 6' Barnes, c. r., p. c. f. | 20"x 8' Lodge & Davis, c. r., p. c. f.
16"x 6' Automatic threading. | 24"x 14' New Haven, c. r., p. c. f., t. a.
16"x 8' National, c. r., q. c. | 42"x 16" Niles, c. r., p. c. f.
18"x 6' Reed, c. r., p. c. f. | 38"x 10' Harrington, c. r., p. c. f., ck.
18"x 8' Rahn-Carpenter, c. r., c. p. f.

MILLING MACHINES.

No. 3 Brainerd plain, vert. att. | Garvin duplex.
Lincoln type millers, (25). | Nos. 1 & 2 P. & W. hand.
No. 2 Garvin universal. | No. 5 Becker, vertical.

PLANERS.

15"x 15"x 3' New Haven. | 36"x 26"x 15' Gleason.
24"x 24"x 6' Gray. | 54"x 42"x 16' Woodward & Powell.
36"x 26"x 6' Whitcomb-Blaisdell. | 64"x 48"x 30' Pond.

PUNCHES AND SHEARS.

25" Weiss & Roos. | No. 5 New Doty, hand.

SAWS.

4" Esen-Lucas. | 20" Burke, cold.
No. 11 Higley cold saw. | No. 1M Q. & C. power.

SCREW MACHINES.

2" Cleveland automatic. | 1" Rivett, wire feed.
13" Gisholt. | 3 $\frac{1}{2}$ " Cleveland automatic.
18"x 7" Fay & Scott. | 4" National-Acme, automatic.
24x26 Acme flat turret. | 4" Hartford, automatic.

MISCELLANEOUS.

Air compressor, 8"x8" American. | Gear cutter, 22" G. & E.
Bending machine, 30 ton Watson | Keyseater, No. 1 Davis.
Stillman. | Pipe machine, 4" Saunders.
Blower, pressure, No. 4 American. | Pipe machine, 6" Armstrong.
Broaching machines, Nos. 3 and 4 | Shaper, 20" Juengst.
LaPointe. | Tapper, 4" Baker Bros.
Cutting-off machine, 3" Davis.

SECOND-HAND MACHINERY

FOR SALE BY

New York Machinery Exchange, 50 Church St., New York City
New York's greatest stock. Some of the stock on hand is as follows:

PRESSES.

Ten No. 60½ Bliss geared reducing presses, rack and pinion movement, 4" to 42" adj. stroke; practically new; wt. 12,500 lbs. each; less than year old.
Toledo double crank geared forging press; weight 28,000 lbs.
Four No. 27K Bliss knuckle joint presses; weight 77,000 lbs. each.
Consolidated geared arch press; weight 11,000 lbs.
No. 69 Bliss inclinable press.
Farrel double crank geared press; weight 9,000 lbs.
PG-6 Ferracute geared punching press; weight 12,000 lbs.
No. 2 new Bliss straight sided double crank press; weight 5,000 lbs.
Sellers hydraulic wheel press, 100 ton capacity.
Hoe & Co. hydraulic vertical press, 500 ton capacity.
No. 24 Zeh & Hahnemann power press, 2" stroke.
No. 4 Farrel punch press, 1½" stroke.
No. 1 Bliss straight sided press, 8" stroke.
No. 3 Manville stamping press, 1" stroke.

PUNCHES—SHEARS—ROLLS.

Sellers & Co. double angle shear, capacity 8"x8"x1" angles, weight 41,000 lbs.
Pels & Co. beam shear "T-40."
No. 3 Hilles & Jones punch and shear.
Bement punch, 30" throat, capacity 2" in 1".
8' Lennox rotary splitting shear.
Long & Allstatter size "D" bar shear, 34" capacity; weight 30,000 lbs.
Bass double end punch and shear, 20" throats, capacity 1½" in 1".
Heinss double end punch & shear, 12" and 21" gaps, capacity 1" in 1".
Cockburn direct acting punch, capacity 1" in 1".
Reade Cleveland single end punch and shear, 28" throat.
Waterbury-Farrel rotary splitting shear, 18" throat.
Kling Bros. punch, 14" throat, capacity 1½" in 1".
Hilles & Jones double angle shear, capacity 6"x6"x1".
Bement plate shear, 26" throat, 1" capacity.
Hilles & Jones 12' ship plate rolls. Kling 8' boiler plate rolls.

LATHES.

114"x22" Pond, 12'6" bet. centers, quadruple grd., face plate dr., dia. face plate 9'3"; dia. main spindle bearing 11"; c. rest, pwr. cross fd.	26"x20" Lodge-Shipley, q. c. g.
63" Lodge-Shipley dbl. pulley lathe.	26"x14" Putnam.
36"x19" New Haven.	26"x12" Blaisdell.
36"x15" New Haven.	24"x20" Morse.
36"x14" Fifeild.	24"x12" Johnson.
34"x16" Perkins.	24"x12" Reed-Prentice, (2).
32"x25" LeBlond, q. c. g.	24"x10" Bridgeport.
30"x29" Lodge-Shipley, q. c. g.	24"x 8" American, taper attachment.
30"x20" Putnam.	22"x10" Davis, qck. change gear, (2).
28"x16" Fifeild.	18"x10" Greaves-Klusman, q. c. g.
26"x24" New Haven.	18"x 8" Schellenbach, geared head.
	16"x 6" LeBlond, geared head, single pulley drive, double back geared, taper attachment, (3).

BORING MILLS.

10' Betts vertical, two heads.	No. 1 Barrett horizontal cylinder boring machine, 34" bar.
66" Betts vertical, two heads.	No. 2 Rockford horizontal drilling and boring machine.
60" Baush vertical, two heads.	36" Niles vert. boring mill, two hds.
60" Niles vertical boring and turning mill, two heads.	

MILLING MACHINES.

No. 2 Owen universal.	Newton duplex slab, 42" between heads; 10' platen.
No. 1½ Cincinnati, full universal.	76" Newton vertical, heavy duty; 48" circular table.
No. 1 Hendey-Norton universal.	No. 12 Brown & Sharpe manufacturing, (4).
Ingersoll slab, adjustable rail, three heads, wt. 55,000 lbs.; 12' platen.	
No. 5 Kempsmith.	

RADIAL DRILLS.

5' Box.	34" Gang, (2).
4' Gang.	24" Gardam.
3½" Niles.	

SECOND-HAND MACHINERY

New York Machinery Exchange—Continued.

GRINDERS.

12"x72" Norton, pl., cylindrical.
 New 10"x24" Norton, pl., cylindrical.
 No. 2 Falkenau pl., cylindrical.
 No. 2 Brown & Sharpe, surface.
 No. 1½ Landis, internal, (3).
 No. 1 Brown & Sharpe, internal.
 Style "BX" Wilmarth & Morman,
 cutter, reamer and drill, (2).
 No. 6A Bryant hole and face grinder,
 grind up to 16" dia., 7½" length.

Springfield surface, working surface
 of table 17"x50".
 No. 1 Cincinnati, universal cutter
 and tool, (2).
 No. 3 Brown & Sharpe, universal
 cutter and reamer.
 No. 2 Garvin, cutter and reamer.
 Whitney, surface, table 6"x12".
 Saxon, surface, table 8"x18".
 10"x7" Brown roll grinder.

MISCELLANEOUS.

Cutting-off machine, 9" Bement-
 Miles, geared head, double end.
 Cut-off machines, Hurlbut-R., (6)
 Cut-off machine, 1½" Hurlbut-R.
 Flat turret lathes, 24"x24" J. & L.,
 grd. hd., bar and ck'g equip., (6).
 Planer, 44"x42"x17" Betts, 2 heads.
 Planer, 44"x44"x16" Niles, 2 head.
 Planer, 36"x36"x12" Chandler, heavy
 duty, weight 35,000 lbs.
 Planer, 36"x36"x12" Niles.
 Planer, 36"x34"x10" New Haven.
 Planer, 30"x30"x12" Detrick & H.,
 open side, 3 heads.

Planer, 26"x26"x8" Gray.
 Screw machine, 4 spindle automatic,
 1½" National-Acme.
 Screw machine, 4 spindle automatic,
 1" National-Acme.
 Shaper, 30" Morton, draw cut.
 Shaper, 24" Steptoe, geared crank.
 Shapers, 24" Hendey, friction, (2).
 Shaper, 20" Steptoe, crank.
 Shaper, 16" Hendey, friction.
 Shaper, 16" Walcott.
 Shaper, 16" Juengst.
 Shaper, 14" Sellers, traveling head.

We have photographs of many of these machines.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES AND TURRET LATHES.

13-15-16 and 18 O. & S., h.s. c.r., new.
 14"x6" Bradford, power feed turret.
 14"x 6" Blaisdell, taper, (2).
 20"x 8" Hamilton, h.s. d.b.g., new (8).
 20"x10" Putnam, overhauled.
 21"x14" Ffield, comp. rest.
 23"x10" Blaisdell, overhauled.

24"x16" Dietz, 5" h. s., c. r., taper.
 15"x 6" Fox universal lathe.
 16"x 6" back geared turret.
 18"x 6" Mueller, turret on shears.
 2"x24" Jones & Lamson, (2).
 24" Gisholt, 4" hollow spindle.
 1" Garvin hand screw machine.

SHAPERS AND PLANERS.

15" Hendey tool & die shaper.
 15" American, crank.
 16" Steptoe crank shaper.
 16" Smith & Mills.

20" Ohio, new.
 22" Walcott shaper, pr. down fd.
 20"x20"x 4" Industrial.
 30"x30"x12" Pond planer.

MISCELLANEOUS.

Automatics, 7-16", National (2).
 Broacher, 6½" stroke Waterbury.
 Buffing lathes, all sizes.
 Centering machine, 6" P. & W.
 Cut-off machine, 3" Davis.
 Die miller, No. 1 Thurston.
 Drills, flexible shaft (2).
 Drills, hi-speed, 23-32"—32 tapered.
 Drills, sensitive, 1, 2, 3 and 4 spindle.
 Drill, Avey 3-spindle high speed.
 Drill, turret, 6-hole Quint.
 Drill, 7-spindle, adj. centers.
 Gas engines, 4 to 150 h. p.
 Grinder, tool, Gleason.
 Grinder, surface, 24x12.
 Hammer, power, 100 lb. upright.
 Hammer, drop, 750 lb. Toledo.

Lathe, 24" Gisholt, 4" hol. spdl.
 Miller, No. 7 Becker.
 Miller, Gooley & Edlund, 38" fd.
 Miller, univ., Kempsmith No. 2.
 Motors, 2 to 25 h. p., 3 phase, 220 v.
 Pipe machines, 2", (2).
 Press, 7,000 lb. Waterbury, 6½" stroke.
 Press, 102" Ohl, 24000 lbs.
 Radial drill, 30" Keystone.
 Radial, 5" Universal.
 Riveter, ½" Shuster, 20" throat.
 Rolling mill, 22"x12" Toledo, 16000 lb.
 Shear, squaring, 36" gap, 18" cap.
 Straightening rolls, 30".
 Tapper, vertical, Garvin No. 1.
 Threading mch., Webster & Perks
 Variable speed transmission, Reeves.

SECOND-HAND MACHINERY

FOR SALE BY

F. H. Kappen & Son, Agents, 93 W. Water St., Milwaukee, Wis.

Air compressor, 6x6x7, steam drive.
Blowers, pressure.
Boilers, stationary.
Bolt cutter, 1" Wells.
Cutting-off machines, Burke and Burr.
Drill presses, sensitive.
Engines, steam and gasoline.

File sharpener, American.
Motor, 550 v., d. c., 6 h. p.
Lathes, 10x36" Shepard, 9x4 Star, 24x12 A. & C.
Press, geared, No. 6 Model H.
Perkins, 2" stroke.
Speed lathe, 12x45 Oliver.

FOR SALE BY

Enterprise Machinery Co.,

32-34 S. Clinton St., Chicago, Ill.

Drill, 20" Mechanics, w. & l. \$ 40.
Grinder, 12"x42" Landis..... 1100.
Lathe, speed, 12"x4'..... 40.
Lathe, 18"x12' Blaisdell, c. r. 450.
Lathe head, 36" face pl. c. s. 85.
Miller, hand, 9"x5"x3" Pond. 75.
Miller, Brainerd, p. f., 8"x30" 375.
Miller, vertical rotary attach., heavy, little used. 500.
Planer, 42"x42"x15', 2 heads, 1200.

Punch press, pow. Baby new \$ 40.
Punch pr., straight side, 6000 lb. 350.
Punch, shear and rod cutters, new, power, 3" to 1", \$115 to. 290.
Screw mch., 24" Foster, p. f.
Sc. mchs., No. 2 B. & S auto., (8)
Screw mchs., J. & L. (15) \$600 to 1200.
Time clock, 700 Nos. Dey 125.
Tools, cut-off, 8 stops 500.
Over 500 other tools; write us.

FOR SALE BY

Federal Machinery Sales Co.,

8 N. Jefferson St., Chicago, Ill.

BORING MILL.

Bullard 34" vertical single head turret boring mill, geared feed, 3-jaw combination chuck, table.

DRILLING MACHINES.

2-spindle Henry & Wright high speed ball-bearing drill.
3-spindle Henry & Wright high speed ball-bearing drill.
4-spindle Kern high speed ball bearing drill.
5-spindle Taylor & Fenn high speed ball bearing drill.

GEAR CUTTERS.

24" Gould & Eberhardt spurs and bevels.

KEYSEATERS.

No. 1 Davis, with countershaft.
No. 2 Davis, with countershaft.

LATHES.

14"x 6' Sebastian gap lathe, hollow spindle, plain rest.
15"x 6' Bogart, hollow spindle, r. and f. rest, taper attachment.
16"x 6' Lodge & Shipley, q. c. g., hollow spindle, compound rest.
18"x 8' Lodge & Shipley, geared head, hollow spindle, compound rest.
20"x10' American (Challenge), q. c. g., hollow spdl., comp. r., taper attach.
20"x10' Reed, hollow spindle, compound rest.
22"x10' Reed, hollow spindle, compound rest.

MILLING MACHINES.

No. 2 Hall & Brown plain miller.
No. 2 Pratt & Whitney Lincoln type miller.

PLANERS.

18"x18"x40" Putnam, one rail head.
30"x30"x8' Whitcomb, one rail head.
36"x36"x 8' Niles, one rail head.
48"x48"x16' Sellers, four heads, swivel drive.

PRESSES.

No. 1 1/2 Robinson inclinable (equivalent to No. 3 of other makes).
No. 4 American Can motor driven, geared.
No. 31 Bliss, open back, plain, on legs.

AUTOMATIC SCREW MACHINES.

No. 2 Brown & Sharpe, 1/2" capacity, (5).
1" Cleveland, (3).

SECOND-HAND MACHINERY

FOR SALE BY

The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago

Immediate Delivery.

DRILLING MACHINES.

22" Aurora, s. h., b. g., p. f.
28" W.F. & J. Barnes, s.h., b. g., p.f.
32" Hamilton, s. h., b. g., p. f.
34" Barnes, s. h., b. g., p. f.
34" Industrial radial.
34" Hamilton radial.
4" Fosdick radial.

No. 10 Natco 8-spindle.
No. M-1 Natco 8-spindle.
12 spindle multiple, P. & W.
No. 30-C Baush, 12-spindle.
Allan, 2-spindle (new).
Allan, 4-spindle (new).

GEAR CUTTERS.

30"x9" Gould & Eberhardt automatic for spur and bevel.

24"x7" Gould & Eberhardt for spur.
36" Walcott, for spur.

GRINDERS.

14"x20" B. & S., universal.
Gisholt tool grinder.

No. 5 Diamond, water tool.
No. 3 Modern universal (new).

LATHES.

12"x 5' Davis, c. r.
14"x 6' LeBlond, c. r., taper.
14"x 6' Porter, c. r.
14"x 6' Putnam, p. r.
14"x 6' Fairbanks, c. r., taper.
16"x 6' Prentice, c. r.
16"x 6' Sebastian, p. r.
16"x 8' L. & S., pat. head, c.r., q.c.g.
16"x10' Greaves & Klusman, c. r.
17"x10' Blaisdell, c. r.
18"x 6' Bradford, c. r., taper.
18"x 8' L. & S., pat. head, c.r., taper.
18"x 10' Bradford, c. r., taper.
18"x12' Draper, c. r.
18"x12' Barker, c. r.

20"x10' Flather, c. r.
20"x14' Blaisdell, c. r.
21"x12' New Haven, c. r.
21"x12' Bradford, c. r., taper.
24"x12' New Haven, c. r.
24"x16' Schumacher & Boye, c. r.
24"x13' New Haven, c. r.
30"x14' Reed, c. r.
30"x27' F. E. Reed, c. r., taper.
32"x16' Blaisdell, c. r.
36"x12' American, c. r.
36"x22' Lodge & Shipley, geared head, c. r., q. c. g., motor drive with motor.
68"x20' Fifeild, c. r., t. b. g.

MILLING MACHINES.

No. 12 B. & S. plain.
No. 3 B. & S. plain, with vert. att.
No. 2 Cincinnati plain.
No. 4 LeBlond plain.

No. 13 P. & W., Lincoln.
No. 3 Cincinnati universal.
No. 4-H Becker vertical, (2).
No. 5 Becker vertical.

PLANERS.

24"x24"x 6' Cincinnati, one head.
30"x30"x12' Cincinnati, two heads.
36"x36"x12' Powell, single head, arranged for two.
26"x36"x16' Sellers, one head.

39"x39"x12' New Haven, one head.
40"x38"x14' Putnam, one head.
40"x40"x12' New Haven, one head, one side head.
42"x36"x14' Cincinnati, two heads.

PRESSES.

No. 3 Walsh, o. b. inc.
No. 6-N American Can, s.s., geared.
No. 174 Consolidated, double crank.

No. 25 Toledo, o.b. inc., cam drawing.
No. 95 Bliss, double crank.

SCREW MACHINES.

No. 1 Chicago automatic.
1 3/16" Hartford automatic.
2" Cleveland automatic.
2 1/4" Cleveland automatic.

1" B. & S. plain.
16" P. & W. plain.
3 1/2" Cleveland automatic.
3 1/2" Cleveland auto. (nearly new).

TURRET LATHES.

16" Lodge & Shipley.
25" Niles.
No. 2 Warner & S., hollow hexagon.

2"x24" Jones & Lamson.
24" Gisholt, spindle capacity 6 1/4".
3"x36" Jones & L. chucking outfit.

MISCELLANEOUS.

Bolt cutter, 1 1/2" Acme.
Centering machine, No. 1 Whiton.
Cold saw, No. 3 Burr.
Hammers, 100 lb. Bradley helve., (2).
Keyseater, No. 2 Baker.
Keyseater, No. 00 Baker.
Oil separator, No. 2 National.

Pipe machine, No. 6 Bignall & K.
Pipe machine, No. 8 Bignall & K.
Pipe machine, No. 18 Bignall & K.
Shear, No. 120 Niagara, foot.
Shear, 36" Niagara, foot.
Shear, No. 396 Niagara 8', square.

Write for our Stock List.

SECOND-HAND MACHINERY

FOR SALE BY

Simmons Machine Co., Inc., 981-985 Broadway, Albany, N. Y.
New York Office, 902 Singer Building

NEW MACHINERY

GRINDERS.

External and internal portable,
 Dumore, (6)\$ 75.
 Drill, W. & M., style W. P. L. 160.
 Double disc, 18", 2 extra discs. 300.
 Univ. tool & cutter, No. 6 Stand. 400.
 Universal, No. 1 W. & M., (2) 850.

Universal tool & cutter, No. 6
 Standard, with vise, int. arm,
 chuck, 2 sets jaws\$ 485.
 Surface, No. 2 W. & M., (2) 800.
 Surface, No. 1 W. & M., (3) 225.

MILLING MACHINES.

Hand, No. 1 Bickford (3)\$ 300.
 Hand, No. 1 Standard, (2) 250.
 Plain, No. 1 1/2 American, (2) 875.

Plain, No. 1 1/2 Valley City,\$ 850.
 Plain, No. 1 Dow, (3) 800.
 Universal, No. 1 1/2 Valley City, 1300.

LATHES.

13x6 So. Bend, h. s., c. r., p. c. f.\$ 285.
 14x6 Carrol-J. tool room, re-
 lieving & taper att., q. c. g., (2) 900.
 15x6 Sidney tool room, relieving
 and taper attach., (2) 1000.
 16x6 Canedy-O., c. r., p. c. f., (10) 425.

16x6 Advance, q. c. g., d. b. g.,\$ 660.
 18x8 Cisco, q. c. g., c. r., (3) 800.
 19x8 Sidney, q. c. g., c. r., (4) 835.
 21x8 Sidney, s. c. g., c. r., (6) 830.
 24x10 Advance, c. r., h. s. 1175.

MISCELLANEOUS.

Cold saw, 26" Lee-Simplex, 8"
 cap. round, with saw grinder\$ 925.
 Drill, 1/2" C.-O. No. 36 sens. 25.
 Drills, 20" Canedy-O., p. f. (6) 105.
 Drills, No. 1, Sipp type B, (2) 179.
 Emery stands, No. 2 Canedy-O.,
 with countershaft, (4) 25.
 Forge, No. 300 Tiger, blower
 and hood 25.

Hack saw, No. 1 Racine hi-pwr. \$ 104.
 Screw mchs., hand, No. 2 Foster
 pl. long. fd. to cut-off slide 575.
 Screw mche. No. 2 Hercules,
 capacity 1x10, w. f. 500.
 Shapers, 16" S. & M. hi-spd. b. g., 575.
 Shapers, 16" S. & M. pl. crank (2) 490.
 Shaper, 38" S. & M., tri. grd., 950.
 Shapers, 32" S. & M., tri. grd., (2) 1075.

USED MACHINERY

PLANERS.

24x24x7 Pond, perf. condition. \$ 600.
 26x26x7 Pond, perf. condition. 625.
 32x32x7 6" Pond, lvy., 2 heads 1050.

60x60x12 Pond, solid bed, 2 hds. \$ 1200.
 60x60x12 Betts, solid bed, 3 hds. 1800.
 54x54x16 Sellers, solid bed, 3 hds. 2000.

GRINDERS.

Waterbury surface grinder,\$ 30.
 16x36 Bridgeport pl. like new (3) 650.
 10x36 Landis pl self contained. 1600.

12x32 Landis pl. perf. condition \$ 900.
 8x30 Walker surface grinder 675.

TURRET LATHES AND SCREW MACHINES.

Pratt & W., 17-32" hole, dbl.
 cutting-off slide\$ 275.
 Wood 1" tilted turret, pan bed, 450.
 Potter & J. semi-auto, 3" h. s. 650.
 P. & J. semi-auto., 4" h. s. 750.

24x26 Greenlee flat turrets, (15) \$ 900.
 24" B. & O. No. 8 pwr. feed to
 turret, used 3 months, (9) 1200.
 24" B. & O. No. 9 same as above
 power to cut-off slide, (4) 1800.

DRILLS AND RADIAL DRILLS.

12" Gordon sens., 1/2" capacity. \$ 30.
 10" Barnes upright, 1/2" cap. 35.
 2-sp. Fulton No. 2 sens., 1/2" cap. 60.
 2-sp. Pratt & W. upright. 70.
 2-sp. Dwight-Slate sensitive 110.
 4-sp. Dwight-Slate sens., (2) 120.

20" Canedy-O., p. f., tapping (2) \$ 125.
 24" Prentiss, sliding hd., b. g., 150.
 26" Barnes, b. g., sliding head, 225.
 6" Drees plain radial 1250.
 6" Fosdick pl. radial, tap. att. 1250.
 3" Prentiss plain radial 600.

LATHES.

12"x5 1/2" Barnes, hol. spdl., s. r.
 screw cutting, chuck\$ 75.
 10x5 Seneca Falls, h. sp., screw
 cutting, chuck, raising blocks 150.
 12x5 1/2" Barnes, s. r., h. s., screw
 cutting, turret on shears 175.
 13x6 Seneca F., pan b., c. r., h. s. 425.
 30x16 New Haven, p. r., p. c. f.,
 chuck, 5" belt 450.
 22x15 Fifield, c. r., p. c. f.,
 grinding attachment 650.
 Davis chucking lathe 700.

40x14 Harris, c. r., p. c. f., com-
 plete with large face plate\$ 800.
 20x8 LeBlond c. r., p. c. f., h. s.,
 5-step cone 800.
 32x16 F. & S., h. s., c. r. 1050.
 19-38x6-12 Fay & S. extension,
 c. r., p. c. f., h. s. 1150.
 66x16 Pond, c. r., p. c. f., h. s.,
 5" belt 2000.
 No. 3 1/2 Stark precision, comp.
 slide rest, collets, grinding
 att., internal and external 250.

SECOND-HAND MACHINERY

Simmons Machine Co., Inc.,—Continued

MISCELLANEOUS.

Automatics, No. 53 National-Acme, like new, (9)	\$1700.	Miller, slab, 14-48 Bement-M..	\$ 650.
Borer, 36" Bullard, gear feeds, single pulley drive	2000.	Miller, pl. No. 15 Garvin div. hd.	750.
Borer, 60" Betts vert. perf. cond.	2500.	Millers, P. & W. Lincoln, (30)	100.
Bridge reamers, lot of high speed, all sizes, 20% off list.		Press, No. 63-N Bliss, dbl. act, g	550.
Centering machine, McCabe...	50.	Profiler, No. 14 Garvin, Weston drive, complete	925.
Chain hoist, 5-ton Harrington,	90.	Punch press, No. 55 Bliss.	
Emery stand, No. 5 Blount...	35.	Punch & sh., No. 8 L & A 4" thr.	100.
Foot presses, pendulum, (3)...	20.	Shaper, 10" Hendy friction	100.
Keyseaters, No. 2 Davis, (2)...	150.	Shaper, 15" Stetoe perf. cond.	400.
Miller, No. 284 Bement, Lincoln	200.	Shaper, 16" Bement trav. hd...	400.
Millers, No. 7B-B., Lincoln (2)	475.	Shaper, 28" Ohio, like new...	700.
Miller, No. 12 Kempsmith Lincoln type, like new.....	600.	Slotter, 8" Newton, perf. cond.	600.
		Thread miller, Holden Morgan	400.
		Trip hammer, Merrill, perfect	100.
		Wheel borer, Putnam fine cond.	300.

FOR SALE BY

W. L. Perkins, Jr.,

30 Church St., New York

LATHES.

24"x10' Putnam, c. r., cross feed.	32"x10' Putnam, c. r., cross feed.
26"x14' Putnam, c. r., cross feed.	70" Sellers d. h. wheel lathe.
28"x14' Putnam, c. r., cross feed	80" Bement d. h. wheel lathe.

PLANERS.

24"x24"x6' Gray, single head.	40"x40"x12' Putnam, single head.
32"x32"x8' Pond, 2 heads.	72"x72"x8' Sellers, 3 heads.

RADIAL DRILLS.

5' Drees, tapping.	7' Haush, tapping.
6' Bickford, tapping.	8' Pond, tapping.

FOR SALE BY

Herman L. Winterer,

908-910 Beach St., Philadelphia, Pa.

LATHES.

39"x26' New Haven, c. r.	18"x12' New Haven, b. g.
26"x21' Bement, b. g., c. r.	18"x12' Walcott, double.
22"x12' Blaisdell, b. g., c. r.,	18"x10' Lodge & Shipley, q. c. g.
21"x14' Blaisdell, b. g.	18"x 8' Blaisdell, b. g., c. r.
21"x10' Lodge & Davis, c. r.	17"x 8' Prentice, c. r.
21"x28' LeBlond dbl. combination.	17"x 6' Cincinnati, q. c. g.
20"x 8' Flather, c. r.	16"x 6' Flather, c. r.
19"x10' Fitchburg, b. g., (2).	And many others.

TURRET LATHES.

4"x28" Pond.	7"x14" Porter & J., semi-automatic.
2"x18" American back geared chucking lathe.	3"x28" Lodge & S., chucking lathe.
7"x14" Potter & J., semi-automatic.	27" chucking lathe.
	24"x8" Blaisdell ck'g. lathe with tur.

MISCELLANEOUS.

Bending rolls, 9"x33", d. e.	Hammer, drop, 650 lbs. Waterbury-F.
Boiler rolls, 4'6", drop end.	Keyseater, Burr.
Boring mill, hor., 45" Beaman & S.	Keyseater, No. 1 Baker.
Boring mill, vertical, 63" Niles, double swivel heads.	Keyseater, No. 1 Davis.
Centering machine, 4" Whiton.	Keyseater, No. 2 Davis.
Cylinder boring machine, horizontal, 4" bar, Barrett.	Keyseater 19"x8" Beaman & Smith.
Electric welder, 16" throat, Toledo.	Keyseater, 18" stroke Morton.
Gear cutter, univ., 20" Gould & E.	Planers, 20 to 24" with 5 to 8' bed, (6).
Grinder, ring, 8" Heald.	Planer, 34"x34"x9" New Haven.
	Saw sharpeners, (4).
	Shear, power, 10' Bertsch.

Large assortment of Boilermakers' and General Machinery.

Send for complete list.

SECOND-HAND MACHINERY

FOR SALE BY

Brownell Machinery Co.,

Cutting-off mch., 3" Hurlbut & R.
Drill press, Baker heavy duty,
Drill press, 24" Foote-Burt hvy. duty
Drill, 6-spindle Barr sensitive, p. f.
Gear generator, 12" Gleason, single
tool, (2).
Gear generator, 15" Gleason double
tool.
Gear generator, 18" Gleason, double
tool.
Lathes, eng., 16"x7" Oliver, new, (5).
Lathe, engine, 20"x8" Perkins.
Lathe, engine, 20"x12" Perkins.
Lathe, chucking, 20"x8" Florence.

11-13 Eddy St., Providence, R. I.

Lathe, turret, 22" Libbey, 4" hollow
spindle.
Lathes, turret, 21" Gisholt, (4).
Milling machine, universal, Hendey
No. 14.
Milling machine, vertical rotary,
Becker No. 5.
Milling machine, vertical rotary,
Becker No. 2.
Planer, 22"x22"x5' Flather.
Radial drill, 3' Prentice.
Radial drill, 4' Prentice.
Screw machine, No. 2 Southworth,
wire feed, new.

FOR SALE BY

A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago

SCREW MACHINES.

5-16" LaVigne.
7-16" Cleveland, friction fd.
8" Cleveland, friction fd.
8" Cleveland, friction fd.
8" Cleveland, jigger feed.
Hartford, (2).

1" Cleveland, friction jigger feed.
1 1/2" LaVigne, (4).
2" Hartford.
2 1/2" Hartford.
1 1/2" Cleveland, semi-automatic.
1 1/2-16" Dreses, hand.

ENGINE LATHES.

16"x 8" LeBlond.
16"x12" Beaman & Smith.
24"x10" Putnam, (2).
28"x12" Fifeild.

28"x25" Putnam.
30"x14" Blaisdell.
36"x20" New Haven.
New lathes, 13" to 18".

DRILL PRESSES.

14" Mechanics.
20" Barnes.
28" Barnes, sliding head.
28" Bickford, sliding head.
30" Kerkhoff, sliding head.
32" Bickford, sliding head.
34" Barnes, sliding head.

36" Bickford plain radial.
60" Drese, semi-univ. radial.
2 spdl. Rockford.
2 spdl. Henry & Wright high speed.
8 spdl. Valley City mult., No. 2 taper.
10 spindle Pratt & W. multiple.
12 spdl. Baush multiple, No. 2 taper.

MILLING MACHINES AND PLANERS.

No. 4 LeBlond plain miller.
No. 3-B Milwaukee, vert. attach.
No. 24 Brown & Sharpe, plain.
No. 6 Whitney, hand.

36"x36"x10" Gray, two heads.
35"x35"x12" Niles, two heads.
32"x32"x 8' Betts, one head.
24"x24"x 6' Powell, one head.

PUNCH PRESSES.

No. 4 McDonald, o. b.
No. 40 Crosby, o. b.
No. 45 Crosby, o. b., (3).
No. 21 Bliss, o. b. i.

No. 29 Bliss, gang, dbl. action.
No. 58 Toledo, grd. s. s. motor dr.
150-ton Sellers 36" hy. wheel press.
No. 100 Crosby gang, 30" bet. uprights

GRINDING MACHINES.

16" Ransom, disc.
Yankee Style "B", drill.
3-spdl. valve grinder.
No. 6 Diamond floor grinder.
14" Norton floor grinders, (2).

14" Bridgeport floor grinders, (2).
No. 7 Sterling floor grinder, 2".
Springfield dbl. wheel, water.
No. 2 Leland & F. water grinder.
New drill grinders.

MISCELLANEOUS.

Blowers, various.
Bolt cutter, 1 1/2" National, s. hd.
Boring machine, Binsse, 3 1/2" bar.
Hammers, 40 & 60 lb. Bradley, cu. hlv.
Keyseaters, Morton port, 18" & 36".
Keyseater, No. 0 Mitts & Merrill.
Oil gas generator, No. 3 American.
Punch, Wms. & W. 30" throat, 1" cap.
Riveter, 3" Shuster.

Saw, Bryant, cold, 19 1/2" dia. saw.
Saw, cold, No. 54 Nutter Barnes.
Saw sharpeners, Nutter-Barnes, (2).
Saw, band, Williamson, tilting.
Shaper, 16" Smith & Mills.
Shear, No. 136 Niagara sq., 18 g.
Shear, No. 380 Toledo, slitting 16 g.
Tapper, 6-sp. No. 6 Bement, grd.
Tapper, Newton, pulley.

SECOND-HAND MACHINERY

FOR SALE BY

J. Sklar Manufacturing Co., 133-143 Floyd St., Brooklyn, N. Y.

AUTOMATIC SCREW MACHINE.

A second-hand 8" Cleveland automatic screw machine complete with counter-shaft, in first-class condition, which we wish to dispose of as we have no further use for a machine of this size.

FOR SALE BY

Strong & Hery Co., 301 State St., Rochester, N. Y.

The following machines in stock at Rochester for immediate delivery.
NEW.

Chain hoists, Peerless, all capacities.
Cold metal saw, No. 21 Lea-Simplex, with grinder, cap. 8 1/2".
Drills, square base, 20" Barnes, l. & w. feed, (6).
Drills, 20" Barnes, square base, back geared, self feed, auto. stop, (6).
Drill, 20" Barnes, square base, with tapping attachment.
Grinders, all sizes.
Grinder, surface, No. 1 Wilmarth & Morman.
Grinders, electric, Dumore, (4).
Hack saw machines, all sizes.
Lathe, bench, Sloan & Chase No. 5 1/2, compound slide and collets.
Lathes, 14" and 16" Hamilton, quick change, for Dec. 1st delivery.
Lathe, 16"x6" Canedy-Otto.
Lathe, Porter Cable.
Miller, hand, No. 1 Standard.
Milling machine, tool room, No. 2 Sloan & Chase, with centers and vise.
Oven furnace, No. 26 Stewart.
Oven furnace, with blower, No. 28 Stewart.
Punch presses, 2 1/2" Toledo, Dec. 1st, (2).
Punch presses, No. 5 Toledo, Dec. 1st, (2).
Punch press, No. 2 Rockford, knockout in slide, 2" stroke, equal to Bliss No. 19.
Screw machine, turret, No. 2 Bardons & Oliver, g. f. h.; code, "Canton."
Screw mchs., turret, No. 4 Bardons & Oliver, g. f. h.; code, "Michigan" (2).
Screw machine, turret, No. 4 Foster, g. f. h., power feed.
Screw machine, turret, No. 24 Garvin, g. f. h., power feed; code, "Byssus."
Screw machines, plain head, No. 1, 8" through wire feed, (2).
Shapers, 16" Smith & Mills, plain crank (2).
Shapers, 16" Smith & Mills, high speed, b. g., (2).
Shapers, 20" Smith & Mills, high speed, b. g., (2).
Shaper, 20" Smith & Mills, triple geared.
Shapers, 32" Smith & Mills, triple geared, (3).
Squaring shear, 36" D. H. Stoll, 1/2" cap.

USED MACHINES.

Automatic, 1 1/2" Nat.-Acme, 4-sp.	Lathe, bench, 7" swing, comp.
Automatic, 1 1/2" Nat.-Acme, 4 sp.	slide, 12 collets.....\$ 175.
Boring mill, vert., 60" Niles.	Miller, bench, small..... 60.
Drill, 20" Canedy-Otto. b. g.....\$ 75.	Miller, No. 1 Van Norman, pl. 325.
Drill, 36" Aurora, with tap. att. 250.	Miller, pl., No. 3 B. & S. motor dr. 850.
Flat turret, 2x24 J. & L., latest type, all geared.	Millers, P. & W., Lincoln type (6).
Flat turret, 3x36 J. & L., latest type, all geared.	Presses, special, 1" stroke, will punch 6 1-inch holes in 1-16 stock (2).
Gap lathe, 16x8 Sebastian..... 450.	Profiler, No. 14 Garvin, fine .. 850.
Gear cutter, No. 3 B. & S. auto. 1000.	Screw mch., No. 2 B. & S. auto. 950.
Grinder, 10x36 Landis plain, self contained.	Shaper, plain, 14" G. & E..... 250.
Lathe, 10"x5 1/2" Davis, comp. r. .. 125.	Shaper, 16" G. & E., b. g..... 350.
	Shaper, 16", 2 head, trav. head, 350.

NEW MOTORS.

1-New 5 h. p. Fairbanks-Morse, 220 v., shunt wound d. c. motor, 1100 speed.
1-New 5 h. p. Fairbanks-Morse 220 v., 3 phase, 60 cycle, motor, 1200 speed.
1-New 7 1/2 h. p. Fairbanks-Morse 220 v., 3 phase, 60 cycle, motor, 1800 speed.
1-New 3 h. p. Fairbanks-Morse 220 v., 3 phase, 60 cycle, motor, 1800 speed.
1-Used 1 h. p. G. E. 100 v., d. c. 1800 speed.
1-Used 1 h. p. G. E. 220 v., d. c. 1275 speed.

We stock cold rolled steel, vises, tool holders, lathes and drill chucks, belt-ing, pulleys and all machine shop supplies. Prices on request.

SECOND-HAND MACHINERY

FOR SALE BY

Neidow & Payson Co.,

9 So. Clinton St., Chicago, Ill.

Automatics, 1" to 2".
Boring and turning mills, 41" to 100".
Borer, 2-spindle cylinder.
Cold saw, 36" blade.
Drills, multiple spindle and sensitive.
Gear hobber, 18" Grant-Lees.
Gear cutters, G. & E. and B. & S.
Grinder, 10"x36" Landis.
Hammers, steam, 600 to 3000 lbs.
We can ship heavy duty Lathes, 26" to 42" swing, any length, in 30 days.

Hammer, board, 1200 lb. B. & S.
Lathes, 9" to 96" swing.
Lathes, 2" and 3" J. & L.
Miller, No. 3 Brainard plain.
Miller, P. & W., spline.
Miller, 72"x48"x10", slab.
Planers, 26" to 72" wide.
Press, screw, pwr., No. 2 Amer. Can.
Press, 200 ton Niles car wheel.

FOR SALE BY

Badger-Packard Mch. Co., 72-74-76 W. Water St., Milwaukee, Wis.

DRILLING MACHINES.

14" Mechanics, lever feed, round base, (2).
14" Excelsior sensitive, lever feed, round base.

20" Barnes, geared.
20" Champion, b. g., power feed.
3-sp. Henry & Wright, ball bearing.

LATHES.

24"x12" Perkins, compound rest, solid spindle, countershaft.

18"x10" Blaisdell, compound rest.
9"x4" Star No. 10-E.

MISCELLANEOUS.

Air compressor, 6x6 class G-SB Chicago horiz. belt driven, with tanks and fittings.
Grinder, drill, Yankee style B.
Grinder, water, 20" Diamond No. 64.
Hack saw, No. 2 Racine high speed practically new.

Hack saw, No. 7 Racine high speed.
Hammer, drop, 100 lb.
Planer, 24"x24"x6" Lodge & Davis, with one head on cross rail.
Punch, bench, No. 21 S. M. & W.
Screw mch., No. 2 P. & W. pl. hd.
Shaper, b. g. crank, 20" Smith & M.

FOR SALE BY

**Wm. C. Johnson & Sons Machinery Co.,
210-212 Washington Ave.,**

St. Louis, Mo.

LATHES.

11"x 5' Perkins.
14"x 6' Whitcomb-Blaisdell.
14"x 8' Putnam.
18"x 8' Lodge & Davis.

18"x 8' Rahn & Larmon, q. c.
24"x12" Economic, q. c.
28"x12" Reed.
48"x16" old style.

DRILLING MACHINES.

20" Barnes.
28" Hamilton, sliding head.
28" Lodge & Davis, sliding head.

42" Niles gooseneck.
36" arm Drees radial.
Tapping machine for pipe fittings.

PLANERS AND SHAPERS.

22"x22"x 5' Powell.
36"x36"x 8' Powell.
36"x30"x10' Powell.

60"x72"x16" Fitchburg.
14" Lodge & Davis.
24" Steptoe.

AIR COMPRESSORS.

6"x6" belted.
8"x8" belted.
10"x10"x10" steam driven.

12"x12"x16" steam driven.
600 cu. ft., belted.
1600 cu. ft., steam driven.

MOTORS.

5 h. p. Wagner single phase.
35 h. p. G. E. 3 ph. 60 cy. 220 v.
55 h. p. 500 volt, d. c.

80 h. p. 500 volt, d. c.
50 h. p. 220 volt, d. c.
50 k. w. 220 volt, d. c. generator.

MISCELLANEOUS.

Bolt cutter, 2 1/2" Acme.
Bolt cutter, 2" Schlenker.
Boring machine, 2-spindle horizontal, Newton.
Hammer, 80 lb., Yeakley.
Hydraulic press, 50-ton vertical.

Pipe machine, 4" portable.
Pipe and nipple machine, 2".
Punch and shear, W.-W. No. 17.
Punch and shear, Bremmer comb.
Riveter, 10" cylinder compression.
Turret lathe, 3"x36" Jones & L.

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Cutting-off machine, 2" H. & R.
Cylinder borer and grinder, 24"
Davis, jigs and cutter bars.
Disc grinder & press, No. 6 Gardner.
Drill, 14" Reed, and chuck.
Drill, 20" Snyder, p. f. and a. s.
Drills, 20" Davis, b. g., a. f., (2).
Lathe, 12"x5' Robbins, r. & f. rest.
Lathe, 18"x6' Hamilton, c. r., chuck
fitted.
Lathe, 18"x12' Greaves & K., c. r.,
chuck fitted.

Millers, hand, Whitney, new (2).
Miller, Carter & Hakes, Lincoln.
Miller, Lincoln, 12" Cincinnati.
Piston & ring mch., Gridley, motor.
Power press, Dodge, 12" throat, 24"
fly wheel.
Shaper, 15" Hendey.
Stud mchs., No. 0 B. & S. auto., (2).
Surfacing machine, emery belt, 14"
Peerless.
Turret lathe, 7"x14" Potter & J. auto.
Turret lathe, 20"x8' Fay & Scott.

FOR SALE BY

The Motch & Merryweather Machinery Company,

707-715 Lakeside Av., N. W.

Cleveland, Ohio

Branches: Detroit, Cincinnati, Pittsburgh.

AUTOMATICS.

2" Cleveland.

BORING MILLS.

2 1/2" bar Niles horizontal.

No. 2 Baker cylinder borers.

DRILL PRESSES.

4' Baush radial.

Quint, turret head.

24" Cincinnati, upright.

GRINDERS.

10x50 Norton.

Blanchard, vertical surface.

14x50 Norton.

No. 1 Cincinnati, cutter and tool.

12x32 Landis.

No. 12 Gardner, disc, duplex.

No. 6 Modern, arranged for internal
grinding.

No. 2 Leland & F., wet tool.
Polishing and buffing stand.

GEAR CUTTERS.

No. 326 Brown & Sharpe.

36" Flather.

KEYSEATERS.

No. 0 Baker.

No. 3 Mitts & Merrill.

No. 2 Baker.

18"x14" Morton.

LATHES.

12"x5' American.

18"x12' Lodge & Shipley.

14"x6' Fay & Scott.

22"x14' Davenport.

16"x6' Blaisdell, r. and f. rest.

26"x12' Bridgeford, 3-step cone, dbl.
back geared.

18"x8' Hamilton.

36"x16' Springfield.

18"x8' Davis, 3-step cone, double
back gear.

38"x16' Fifield.

18"x10' Bradford.

Tindale-Morris crankshaft lathe.

MILLING MACHINES.

No. 1 Kempsmith, plain, single
pulley drive.

No. 7 Becker, Lincoln type.
No. 3 Brown & Sharpe plain.

PLANERS.

30"x30"x10' American, 1 head.

48"x48"x12' Hewes & Phillips, 2 hds.

30"x30"x10' Gray, 1 head.

TURRET LATHES.

18" Libbey.

24" Gisholt, 5 1/2" hole.

21" Gisholt, 2 1/2" hole.

24" Gisholt, 6 1/2" hole.

22" Libbey.

SCREW MACHINES.

1" Garvin.

1 1/2" Bardons & Oliver.

1" Warner & Swasey.

4 1/2"x36" Bardons & Oliver, motor
drive.

1" Foster-Kimball.

TAPPING MACHINES.

7" Baker.

No. 2 Garvin.

MISCELLANEOUS.

Folder, 72" Niagara.

Flywheel balancing mch., Rockford.

SECOND-HAND MACHINERY

FOR SALE BY

Broadway Machinery Co., 236-238 Broadway, Cincinnati, Ohio

LATHES.

22"x12' New Haven, c. r., h. s.	30"x10' Fifeild.
22"x12' Dietz-Schumacher c. r.	30"x12' New Haven.
24"x12' Prentice Bros. c. r.	30"x14' Fitchburg.
26"x15' Niles, c. r.	30"x22' New Haven.

MISCELLANEOUS.

Boring mill, 18' Niles.	Screw machine, No. 2 Pratt &
Planer, 32x32x 8' Gray, 1 head.	Whitney, hand. wire feed.
Planer, 32x32x10' American, 1 head.	Shaper, 21" Juengst. bk. grd. crank.
Planer, 36x36x10' Pond, 1 head.	Shaper, 24" b. g. crank.
Planer, 36x36x11' Davis-Egan, 2 hds.	

FOR SALE BY

The Machinery Warehouse, 3705 S. Ashland Ave., Chicago, Ill.

GENERATORS.

The following 125 volt d. c. belted generators. All are rebuilt and in guaranteed condition. To compute capacity of each machine, regard a k. w. to equal 1½ h. p., or suitable for twenty 16-candle power carbon lights. Write for stock list of 250 volt d. c. machines.

1-7½ k. w. Northern generator, 1250 r. p. m.
 1-10 k. w. Fairbanks-Morse generator, 1200 r. p. m.
 1-11½ k. w. Crocker-Wheeler generator, 1250 r. p. m.
 1-30 k. w. Western Electric generator, 775 r. p. m.
 1-60 k. w. Northern generator, 750 r. p. m.
 1-100 k. w. Sprague generator, 775 r. p. m.

FOR SALE BY

Western Machinery Co., 12 West Third Street, Cincinnati, O.

GRINDERS AND TURRETS.

No. 3 Landis universal complete. 2"x24" J. & L., geared head.

LATHES.

22"x16' Schumacher-Boye, c. r.	11"x5' Barnes, new, (5).
21"x8' Bradford-Mueller, c. r.	8"x5' Barnes.
21"x8' Reed, c. r., taper.	11" No. 5 Barnes, new, (5), \$100.
30"x10' Pratt & Whitney.	Several 18" cheap lathes, old type,
18"x6' Lodge & Shipley, q. c. g.	\$125 each.
18"x6' Niles.	Special lathe for boring lathe spdl's.

MISCELLANEOUS.

Drill, 48" Niles, sliding head.	Milling machine, Niles.
Gear planer, 36" G. & E.	Planer, 30"x30"x11' Niles.
Milling machine, Reed, Lincoln.	Shaper, traverse, 12" Steptoe.

FOR SALE BY

E. S. Cullen Machinery Co., 340 Leader News Bldg., Cleveland, Ohio

Boring and turning mill, 10-16 Niles, motor driven.
 Boring, drilling and tapping machine, horizontal, Pond, belt driven, floor plate 10x12, diameter of spindle 3", greatest distance spindle to floor plate 90", with outboard support; elegant condition.
 Hammer, double frame steam drop, 1500 lbs. Bement Miles, fine condition.
 Hydraulic riveting plant absolutely new, consisting of R. D. Wood 96" triple pressure gap riveter, 75 ton cap.; 10 ton tower crane, accumulator and pump, 1500 lb. pressure.
 Hydraulic riveting plant, consisting of 15' locomotive gap riveter, triple pressure, 100 ton capacity, cap. 1½ rivets; 25 ton power crane, pump and accumulator, 1500 lb. pressure; used not over 30 days.
 Punch, new, Long & Allstatter Style A, belt driven, depth of throat 10", 3" stroke, cap. 2" in one inch thickness, 8"x1" flats, 2" round bars.

SECOND-HAND MACHINERY

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse 216-218 Penn Ave., Pittsburgh, Pa.

Good Used Equipment.

Blower, No. 2 Buffalo.	Lathe, 18"x 8' L. & S., grd. hd., q. c.
Bolt cutter, 1 1/2" Morgan, single hd.	Motors, 10, 15, 17, 100 h.p., 220v., d. c.
Boring mill, 6' Bement, 2 heads.	Motor, 10 h.p., 500 v., d. c.
Boring mill, 10-16" Niles.	Pipe machines, 2, 4, 6, 8, 10 and 12".
Boring mill, 14-20" Niles.	Planer, pony, 24x6", auto. feed.
Bulldozer, No. 3 Williams & White.	Press, s. s. 4000 lb., auto. roll feed.
Crane, 2 1/2-ton, 220 v., d. c., 23'5" span.	Presses, No. 19 Bliss equivalent, (4).
Crane, 6-ton, 220 v., d. c., 16' span.	Pumps, triplex, 6x8", motor drive.
Crane, 8-ton, 220 v. d.c., 38'9" span.	Punch & shear, 10" tht. cap. 1 1/2"x1".
Crane, 25-ton, 75' span, 500 v., d. c.	Punch & shear (sgl.) 48" cap., 4x1".
Crane, 50-ton, 52' span, 500 v., d. c.	Rolls, straightening, 56" H. & J. No. 0.
Drill presses, 20" & 30", sliding hd.	Sander, roll, 11"x44".
Gas engine, 35 h. p., 2 cyl. vertical.	Seamer, double, No. 305 Toledo.
Generators, 3, 22 1/2 k. w., 110 v., d. c.	Shear, rotary bevel, No. 2 Lennox.
Hammer, 50 lb. Modern. power.	Shear, butterfly, 8" knives.
Hammer, 300 lb. Johnston & J.	Steam engine, 14x18", 125 h. p.
Keyseater, No. 1 Davis.	Surface condenser, 500 sq. ft.
Lathe, 24"x14' L. & S., h.s., q.c., c.r.	Testing machine, 200,000 lbs. Riehle.
Lathe, 20"x 8' Porter, p. r., s. s.	Turret lathe, No. 4 H. & J., 3" h. s.

Partial List—Details upon request.

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York.
Located at Chicago, Boston and New York.

LATHES.

12"x 5' speed lathe.	16"x8' VonWyck, q. c.
15"x 7" P. & W. speed lathe.	

AUTOMATIC SCREW MACHINES.

3" Acme old style 4-sp. automatic.	4" Spencer single turret, auto.
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BORING AND DRILLING MACHINES.

3" spindle Pond horizontal boring and drilling machine.	36" Brown & Sharpe turret borer.
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PLANERS.

22"x22"x 6' Harrington hd. planer.	42"x42"x20' Miles, 2 heads.
24"x24"x6' Bertram.	48"x48"x20' Sellers, 2 heads.
30"x30"x 8' Niles, 1 head.	

DRILLING MACHINES.

14" 3 spindle Henry & Wright.
 17" 4 spindle gang, Jones & Lamson.
 No. 14 Pratt & Whitney multiple, 1" capacity, arranged for 16 spindles.
 No. 10 Pratt & Whitney multiple, 1 1/2" capacity, 10 spindles.
 No. 1 Pawling & H. horizontal, belt drive.
 Dallet and Prentice portable drills.

RADIALS.

2 1/2' Grant, semi-radial.	4 1/2' Bement, plain.
3 1/2' Bement, plain radial.	6' Niles, semi-universal.
4' Barr, old-style.	

RAILROAD MACHINERY.

Bement double axle lathe.	42" Niles car wheel lathe.
Niles double axle lathe.	79" Pond dbl. driving wheel lathe.
Putnam heavy axle lathe.	

GRINDERS.

Automatic grinder, for saw blades.

MISCELLANEOUS.

Bolt cutter, 2 1/2" National.	File sharpener, American.
Cut-off machine, 4 1/2" Starr.	Grindstone, 34", iron frame.
Engine, 500 h. p.	Punch, horizontal, 60" throat, cap.
Engine, 100 h. p.	2" hole in 1", weight 47,000 lbs.,
Engine, 75 h. p.	belt driven.

SECOND-HAND MACHINERY

FOR SALE BY

G. R. M., Care A. H. Hitchcock, 1220 Caxton Bldg., Chicago, Ill.

For immediate delivery, subject to prior sale.

Gas furnace, No. 1 American.
Grinder, universal cutter and tool, new Wilmarth & Morman, power feed.
Grinder, New Yankee drill, capacity to 3 $\frac{1}{2}$ ".
Milling machine, plain, No. 2 Cincinnati.
Planer, 24" x 24" x 5' Powell.
Turret lathe, 1" Bardons & Oliver.

FOR SALE BY

Brown-McDonald Machinery Co.,

906-908-910 North Market Street, - - - St. Louis, Mo.

LATHES.

17" x 8' Sidney, q. c. g.	15" x 8' South Bend, new.
13" x 6' South Bend, (new).	16" x 8' South Bend, new.
14" x 5' Putnam, s. s., p. r.	17" x 8' Fitchburg, h. s., p. r.
14" x 5' Fitchburg, s. s., p. r.	

DRILLING MACHINES.

Barnes, $\frac{1}{2}$ " capacity, single spindle.	New 20" Champion, w. & l., back geared and power feed.
26" Aurora, b. g., p. g. f.	36" s. h., back geared, p. f.
New 20" Champion, w. & l., (3).	

PLANERS.

26" x 26" x 7' Whitcomb.	30" x 30" x 9' New Haven.
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COMPRESSORS.

8x8 Star, sgl. cyl., dbl. a., belted.	1160 cu. ft. Ingersoll, steam, cpd. air.
10x10 Star, with 10x10 vert. engine.	20" x 20" x 13 $\frac{1}{2}$ " Norwalk, straight line.

MISCELLANEOUS.

Cold saw, Q. & C.	Rolls, 8' Hilles & Jones, cap. $\frac{1}{2}$ ".
Friction saw, Ryerson, motor driven.	Shaper, 14" Steptoe, crank.
Hack saw, Atkins Kwik Kut.	Shears, square, 37" Bertsch, 15" gap.
Hammer, helve, 60 lb. Knowlton.	Slab miller, 48" Cincinnati.
Hammer, helve, Rochester, size B.	Steel brakes, 4' and 8'.

FOR SALE BY

Russell Machine Co., 28th St. and A. V. R. R., Pittsburgh, Pa.

DRILLING MACHINES.

20" Silver, hand and lever feed.	40" New Haven, b. g., sliding hd.
22" New Haven, sliding head.	36" Universal radial.
26" New Haven, b. g., sliding hd.	54" Niles old style radial.

LATHES.

16" x 8' Fitchburg.	26" x 12' Lodge & Shipley.
22" x 10' Schumacher-Boye.	26" x 15' Gleason.
22" x 14' Blaisdell.	

PLANERS.

New Haven, 22" x 5' platen.	Gleason, 36" x 11' platen.
Flather, 24" x 6' platen.	American, 36" x 13' platen.
Pond, 26" x 7' platen.	

BORING MILLS.

8' Bement-Miles, 2 heads, motor drive.	48" Harrington car wheel mill.
	10"-16" Niles, 2 hds., motor drive.

PUNCHES AND SHEARS.

Cleveland punch, single end, $\frac{1}{2}$ " x $\frac{1}{2}$ ".	No. 2 Hilles & Jones, dbl. end, 1 x $\frac{1}{2}$ ".
Fischer punch & shear dbl. end, $\frac{1}{2}$ " x $\frac{1}{2}$ ".	Alligator shear, upper blade 8 $\frac{1}{2}$ ", lower 11 $\frac{1}{2}$ ".
No. 3 Long & A., single end, $\frac{1}{2}$ " x $\frac{1}{2}$ ".	

PRESSES.

No. 3 Stiles inclinable.	Leffler, equal to No. 18 Bliss.
No. 52 Toledo arch press.	

HAMMERS.

40 lb. Bradley wooden helve, (2).	300 lb. Pittsburgh steam, sgl. frame.
100 lb. Bradley upright strap.	1200 lb. Morgan steam, single frame.

SECOND-HAND MACHINERY

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

48"x22" Pond, c. r.	18"x 8' Lodge-Davis, hol. spdl.
22"x 9' 6" Warsaw, c. r.	17"x 8' Johnson, c. r.
21"x16' Fifeild, c. r.	14"x 6' Lodge & Shipley, hol. spdl.
21"x 8' Wood Light, r. f. r.	14"x 6' Hendey.

MISCELLANEOUS.

Boring mills, turret head vertical, 36" Brown & Sharpe, (2).
 Broaching machine, No. 2 Lapointe.
 Cold cutting-off saws, capacities 4", 5" and 6" round.
 Gear cutters, 36" Whiton and 36" Gould.
 Milling machines, No. 2 Pratt & Whitney, plain table 20"x7"; No. 0 Pratt & Whitney, plain, table 5"x24"; No. 3 Garvin hand plain miller.
 Pipe cutting and threading machines, 4" and 6".
 Planer, 26"x26"x6' Gray, with one head.
 Radial drill, 30" Bickford.
 Shaper, 24" Hendey heavy duty.
 Slab miller, 17"x8' Beaman & Smith, with two horizontal spindles.
 Stamping and punching presses, a large number of the open back inclinable, straight side and arch types.
 Turret lathes, Jones & Lamson, 2x24 and 3x36.

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

BORING MILLS.

51" Bullard, 2 heads, plain table.	42" King, 2 heads, set of chuck jaws.
30" Colburn, 1 head.	Moline hole-hog, 2 spindle.

DRILL PRESSES.

No. 3 Avey high speed ball bearing, drills on column, fine shape (6).	2 spindle No. 35 H. & W. hi-spd. (2).
8 spindle Gardam multiple, 17" rectangular head.	4 spindle Henry & W. high speed.
	6 spindle Henry & W. high-speed.
	26" Hoefler, sliding head.

GRINDERS.

No. 2 Bath universal.	8"x20" Landis universal.
No. 7 Besly double end disc.	No. 1 Norton univ. tool and cutter.
No. 4 Brown & Sharpe univ., 12"x60".	10"x72" Norton plain.

LATHES.

14"x 6' American, a. c. g.	16"x 6' Lodge & Shipley, q. c. g.
38"x19' Fish.	24"x10' Lodge & Shipley, q. c. g.
18"x10' LeBlond, q. c. g.	24"x12' Pittsburgh, q. c. g.
24"x14' LeBlond heavy duty crank shaft lathe, pan, pump and piping, rod feed only, q. c. g.	11"x 5' Star.
	13"x 6' Willard, (3).

MILLING MACHINES.

No. 25 Becker-Brainard.	No. 5 Burr keyseat miller.
No. 3 Becker-Brainard.	No. 1-B Kearney & Trecker.
No. 1 Brown & Sharpe universal.	

PRESSES.

No. 2 American Can, o. b. i., (2).	No. 4 Niagara, o. b. i., new, (2).
No. 19 Bliss, o. b. i., (2).	No. 5 Niagara, o. b. i., new.
No. 20 Bliss, o. b. i.	No. 37 Niagara, solid back, new.
No. 21 Bliss, o. b. i.	

SCREW MACHINES.

14" Acme, friction head.	14" Dreeses, friction head.
8" Cleveland automatics, (2).	No. 22 Garvin 1 7-16" cap., fric. hd.

MISCELLANEOUS.

Brake, 7' Ohl, up-and-down pattern.	Shaper, 16" American, back geared.
Filer, No. 2 Cochrane-Bly.	Sprocket turning and boring machine combined, Baker Bros.
Forming roll, power, 99" Bertsch.	Turret lathe, 24" Gisholt, style "I".
Gear cutter, 48" Brainerd.	Valve millers, for brass.
Keyseater, No. 1 Knowles horiz.	
Planer, 48"x46"x14' Pond, 1 head.	

SECOND-HAND MACHINERY

FOR SALE BY

Joseph Beal & Co., - 453-457 Atlantic Ave., Boston, Mass.

TURRET LATHES.

4 Windsor 22"x7' b. g., f. h. Fox turret lathes, turret mounted on carriage, power feed, hand cross feed, 1½" hole in spindle, 11" diam. turret, six 1½" turret holes, with oil pan, triple friction countershaft. Price, \$550 each, f. o. b. Boston.

GRINDERS.

2 Bath No. 24 duplex internal grinders, size of table 10x84, power feed, with countershafts. Price, \$350 each, f. o. b. Boston.

WANTED BY

Morris Benjamin, - 232 Centre St., New York, N. Y.

5 Drill presses, 20-22-24" Barnes.
2 Grinders, universal, Landis, Brown & Sharpe.
10 Lathes, 10-12-14" of good make.
2 Millers, universal, Cincinnati, Kempsmith or Oesterlein.
10 Presses, power, equal to Nos. 18-19-20-21 Bliss.
2 Radial drills, Bickford or Gang.
5 Screw machines, Nos. 1-2 Garvin or Warner & Swasey.
5 Shapers, 12-14-16", also 20-24" back geared.
Leather belting, motors, dynamos.

FOR SALE BY

L. F. Seyfert's Sons, Inc., - 437 N. 3rd St., Philadelphia, Pa.

Boring mill, 42" Rogers, 2 heads.	Press, inclin., No. 126-A Max Ams.
Cold saw, No. 2 Newton.	Saws, hack, No. 2 Racine, Bull Dog.
Drill, 12 spindle Gardam.	Shaper, 16" American, b. g.
Lathe, 26"x12" Davis.	Shaper, 16" Smith & Mills.
Lathe, 26"x14" Draper.	Shaper, 14" Smith & Mills.
Miller, No. 34 Fox, plain.	Shaper, traverse, 16" Bement & Dougherty.
Miller, slab, 24"x24"x8" Ingersoll.	Tapping machine, 4" Hubbell.
Press, inclinable, No. 14 Stoll.	

SPECIAL.

Ames locomotive boilers, butt strapped, triple riveted, two years' old, in 50-60-70-90-100 h. p. units.

FOR SALE BY

**Cyril J. Bath & Co., Offices 428 Leader News Bldg., Cleveland, O.
Warehouse 1031 West Front St.**

BORING MILLS.

7' Pond, two swivel heads, first class condition.
6' Bickford two swivel heads, first class condition.
30" Bullard, single turret head, belt feed, good.
Horizontal Bement, two spindle cylinder borer, swivel table, 42x42.
Horizontal Bement, two opposed spindles, table 36x40.
Vertical boring machine for trepanning work up to 24".

CRANE.

10-ton 60' span Fisher, 3-motor crane, cage, rails, generator, wires, 240 volt, d. c., good condition.

GENERATOR SET.

240 volt, 400 k. w., h. c. Crocker-Wheeler, d. c. to Hamilton-Corliss cross compound, A-1.

MISCELLANEOUS.

Automatic, 7x14 Potter & J. good.	Grinder, 10x36 Landis, second hand, wheels.
Grinder, 10x36 Norton, new, with wheels.	Lathe, 30"x16" American, c.r., good.
Grinder, 1½ Bath univ., good shape.	Lathe, 42"x20" Fifeild, c.r., triple grd.

SECOND-HAND MACHINERY

FOR SALE BY

McMullen Machinery Co.,

Grand Rapids, Michigan

Automatics, 2" Cleveland. (2).
Compressor, 8x8 Bury horiz.
Drill, 3 1/2" Bickford radial.
Drill, 14" Washburn sensitive.
Drill, 20" Prentice, w. & l. f.
Lathe, 13x6 C. & J., h. s., c. r.
Lathe, 15x6 Porter, h. s. & r. & f. r.
Lathe, 11x4 Pratt & W., speed.
Lathe, 11x4 Wells, speed.
Planer, 24x24x8 Whitcomb.

Planer, 24x24x8 Lodge & Davis.
Punch & shear, No. 3 L. & A. double,
6" throat.
Punch & shear, No. 3 L. & A. single,
6" throat.
Riveter, 1/2" Shuster, rotary.
Saw, Millers Falls, hack.
Saw, Q. & C., hack.
Screw mach., 2 1/2" Oliver, p. f. to tur.
Shaper, 15" Hendey, friction.

FOR SALE BY

Peninsular Machinery Co.,

110 Beaubien St., Detroit, Mich.

Countersht., 1 15-16" with 18x5 t. & l.
Chuck, 24" 4-jaw. Ind.
Drill, 14" single spindle sensitive.
Drill, 12" Barr sensitive.
Drill, 4-spindle Bickford.
Drill, 14" Allen sensitive.
Drilling head, 2-spindle, 3" to 8".
Flexible shaft, with c. s., Stow.
Forming roll, 14 ga. 48" long.
Grinder, emery, No. 3 Blount.
Grinder, cutter, No. 1 Garvin.
Grinder, cutter and tool, LeBlond.
Grinder, twist drill, New Yankee.
Groover, No. 3 Niagara.
Hack saw, No. 11 Millers Falls.
Key lathe, 12" Cobb, double end.

Lathe, 16x6 LeBlond, engine.
Lathe, 14x5 LeBlond, rapid prod'n.
Lathe, 20x8 LeBlond.
Miller, hand, No. 1 Whitney type.
Press, No. 3 Model A Perkins, pl.
Press, No. 33E Michigan, geared.
Straightening press, No. 3A Geier.
Screw machine, plain, No. 0 Foster.
Screw machine, plain, No. 1 Foster.
Screw machine, grd., No. 5 Foster.
Screw machine, grd., No. 10 Foster.
Screw machine, grd., No. 8 Foster.
Screw machine, plain, No. 3 Foster.
Speed lathe, 11"x4" Blount.
Speed lathe, 13"x5" Blount.
Speed lathe, 16"x6" Blount.

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

LATHES AND TURRETS.

26"-48"x14" new dbl. spdl. McCabe
lathes, heavy pattern, (11).
28"x15" Harrington.
28"x10"x6" Johnson, (4).
24"x10" new Carroll Jamieson.
20"x10" Blaisdell.
20"x10" Fitchburg.
19"x10" Rahn Mayer, (2).
19"x 8" new Sidney, d. b. g., q. c. g.,
swing 21" (6).
17"x 8" new Sidney, d. b. g., q. c. g.,
swing 19" (9).
17"x8" new National, q. c. g.
15"x10" Sebastian.

14"x10" Prentice, t. a.
13"x7 1/2" new Carroll-Jamieson.
12"x25" bet. center, new Shepard (4).
24" Gisholt.
22"x24" Jones & Lamson.
2" Cleveland automatic screw mche.
2 1/2" wire feed Foster, ring.
16"x6" Windsor, b. g., f. h.
14"x5 1/2" Lodge & Shipley, wire feed.
14"x5 1/2" Bridgeport.
14"x5 1/2" Warner & Swasey, Fox.
1"x8" new Pierce screw machine.
1/2" P. & W. hand screw machine.

MISCELLANEOUS.

Drills, 25" new Superior, (3).
Drills, 23" new Superior, (3).
Drills, 20" new Superior, (3).
Grinder, No. 210 Heald, wet ring.
Hammer, 600 lb. Morgan, steam.
Miller, manufacturers universal
No. 2 Garvin, new.
Miller, No. 1 new Cincinnati, inv.
Miller, No. 1 1/2 American, plain.
Miller, No. 0 Steptoe, b. g., p. f.
Miller, No. 23 B. & S. pl., tbl. 50x10".

Pipe machine, 10" Bignall & Keeler.
Planer, 42"x42"x10" Fitchburg, 2 hds.
Planer, 22"x22"x6" Powell.
Planer, 18"x18"x5" Pond.
Shaper, 24" Flather, back geared.
Shaper, 20" Cincinnati, back geared.
Shaper, 15" Bement, traveling head.
Shaper, 16" new Steptoe, b. g.
Slotter, 10" Powell.
Tapping & drilling mche., 36" Baker.

Lathes in Good Condition

In Stock for Immediate Delivery

One 42"x18' triple geared New Haven, practically new.
 One 21"x10' Bradford, compound rest, power cross feed, rod and screw feed, 1 1/2" hollow spindle, friction countershaft.
 One 18"x10' Flather, compound rest, 1 1/2" hollow spindle, rod and screw feed, power cross feed, friction countershaft.
 One 21"x10' Putnam, c. r., rod and screw fd., pwr. cross fd., fric. c. s.
 One 24"x12' Draper, 1" hollow spindle, compound rest, rod and screw feed, friction countershaft, taper attachment.
 Two 16"x8' Whitcomb-Blaisdell dbl. bk. gr., quick change gr., (new).
 One 18"x10' Hendey, tie bar hd., taper att., drawn-in collets, q. c. g.
 One 16"x8' Flather, comp. rest, quick change gears, taper attach.
 One 14"x6' American, rise and fall rest.
 One 15"x8' Blaisdell, rise and fall rest.
 Six 14"x6' Monarch, quick change gears, compound rest, (new).
 Two 14"x6' Monarch Standard Engine Lathes, (new).
 One 18"x10' geared head Whitcomb-Blaisdell.
 One 16"x8' geared head Whitcomb-Blaisdell.
 Two 16"x8' R. E. Reed Stud Lathes, with oil pan and pump.

Factory & Mill Supply Co.

173 Oliver St., Boston, Mass.

New and Used Machinery. Write for Large List of Used Tools

Milling Machines.

- | | |
|--|--|
| 1 Thread Miller, 4 1/2"x12.
1 Universal Miller, Brown & Sharpe No. 1.
1 Plain Miller, No. 14 Garvin.
3 Lincoln Millers, No. 4 Hendey. | 3 Lincoln Millers, No. 7 B. B.
1 Briggs Miller, Type B., large size.
4 Hand Millers.
2 Oscillating Millers. |
|--|--|

Miscellaneous.

- | | |
|--|--|
| 2 Drills, 20" Barnes.
1 Drill, 24" Cincinnati, with tapping attachment.
4 Drills, 32" Cincinnati, with tapping attachment.
3 Foundry blowers, Root, small.
1 Gear Cutter, 30" G. & E., spur and bevel. | 1 Grinder, automatic, for cold saws up to 25" diam.
1 Grinder, internal, Landis.
1 Grinder, plain, B. & S.
3 Lathes, 21"x12' Perkins.
3 Lathes, 26"x12' Hamilton.
10 Screw machines, P. & W., automatic.
1 Slotter, 10" New Haven. |
|--|--|

T. Crowther & Company, Inc.

170 Oliver Street, Boston, Mass.

Second Hand Machinery

BOLT CUTTERS.

1½" Economic, fitted with Landis all steel die head, NEW.

BORING MACHINES.

Barrett type horizontal, will swing 76", 6" boring bar, two heads.

Niles 33" swing car wheel borer.

Bement 48" swing car wheel boring machine, for 36" wheels.

DRILLING MACHINES.

No. 1½ Avey high speed ball bearing sensitive.

4½" Alfred Box & Co. plain radial.

GEAR CUTTING MACHINES.

15" Gleason bevel gear generator.

18"x4" Brainard spur gear cutter.

GRINDING MACHINES.

12"x42" Landis universal.

12"x72" Norton plain.

LATHES.

9" Sebastian screw cutting, foot power.

14"x 6" Porter, compound rest.

16"x 6" Reed, plain swivel rest.

18"x 6" Davis & Egan, compound rest.

26"x13" Pond, compound rest, 24" chuck fitted, good condition.

MILLING MACHINE.

States plain milling machine.

PLANERS.

36"x48"x 8' Cincinnati, latest model, condition good as new.

PRESSES.

No. 5 Greenerd arbor press.

Upright power punch press, 3" stroke, 3-7/16" columns, 18" between openings.

Straight sided power punch press, 1½" stroke, takes in 20".

TURRET LATHES & SCREW MACHINES.

Gridley semi-automatic piston machine.

Potter & Johnston No. 5-A auto. chucking and turning machine.

(3) 1" Acme screw machines, good as new.

MISCELLANEOUS.

American oil separator.

No. 1 Lennox hand slitting shear.

No. 12 Lennox hand punch, 12" throat.

No. 1 Lindahl iron table saw bench, with saw.

Burke horizontal tapper, bench, ¼" capacity.

Marshall & Huschart Machinery Co.

17 S. Jefferson St.

Chicago, Ill.

915 Chemical Building

St. Louis, Mo.

LATHES.

13"x5' Blaisdell.
14"x6' Von Wyck.
14"x6' Prentice, q. c. g.
14"x6' LeBlond, geared head,
motor drive.
14"x6' Reed.

16"x6' Lodge & Shipley, q. c. g.
16"x6' Blaisdell.
20"x8' Reed.
26"x12' Reed.
30"x10' Fifield, triple geared.

TURRET LATHES.

3"x36" P. & W. chucking, power feed.
18" D. & E., geared friction head.
2"x24" J. & L.; bar equipment.

SCREW MACHINES.

Two No. 55 National-Acme Automatics.
Two 2 1/4" Griddle, single spindle.
No. 1 1/2 Pratt & Whitney, geared friction head, p. f. to the turret.

GRINDERS.

No. 3 B. & S. universal. | No. 2 Norton tool room.
10"x50" Norton plain.

RADIAL DRILL.

5' Drees plain. | 6' Drees plain.

Chandler & Farquhar Company

419-425 Atlantic Ave.,

Boston, Mass.

Some Lathes

No. 79—22"x16' L. & S. 5-Step
Cone Head, with 2 headstocks
and 2 tailstocks on one bed.

No. 87—24"x12' L. & S., sgl. pul.
No. 861—30"x10' L. & S., 5-Step
Cone Head Lathe.

OTHER MACHINES

No. 290—18"x42" Greenwald
Brown Auto. cut-off 150 h. p.
steam engine.
No. B—36"x36"x12' Niles Sin-
gle Head Planer.
No. 254—30"x30"x10' Cincinnati
Single Head Planer.
No. 1337—Crompton - Knowles
Loom Works Keyseater, 60"
stroke, 48" swing.
No. 661—Globe Tool Sharpener
for 1"x6".
No. 680—Safety Tool Grinder
4"x32" emery wheel.
Nos. 333-4 Whitney hand millers.

No. 1379—Universal Swivel
Table for radial drill.
No. 000—6" Hersey Rotary
Water Meter.
No. 1336—No. 00 Sturt. Blower.
No. 2531—Sturtevant 2 1/2" outlet.
No. 2033—Commercial Electric
D. C. 40 k. w. 110 volt Gener-
ator, compound wound.
1—15 h. p. Gas Engine, 215 rpm.
No. 1690—Rockford Straighten-
ing Mch., 8"x24" with c. s.
No. 1346—No. 4 D. E. Whiton
Centering Mch. 6' bed.

USED MOTORS

1—3 h. p. 220 volt, d. c., 1150 r. p. m. Reliance Motor.
1—1 1/2 h. p. Bullock, 220 volt, d. c., 600 r. p. m.
1—3 1/2 h. p. Western Electric, 110 or 220 volt.
1—7 1/2 h. p. Northern, 220 v., d. c., variable speed, 365 to 1100 r. p. m.
40—Chucks of all sizes.

**The Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio,
U. S. A.**

First Class Used Machine Tools

Engine Lathes.

10"x 4' Pratt & Whitney.	20"x14' Rahn-Carpenter.
13"x 5' Pratt & Whitney.	25"x10' LeBlond, turret.
16"x 6' Bradford.	28"x10' Fay & Scott.
18"x 8' Lodge & Shipley.	30"x12' Blaisdell.
18"x10' Rahn-Carpenter.	30"x14' Fifield.
18"x12' Draper.	36"x13' New Haven.

Screw Machines and Turret Lathes.

21" Warner & Swasey, universal.	21" Gisholt.
3"x36" Pratt & Whitney.	24" Morse.
21" Universal.	

Drill Presses.

9" Burke, bench.	14" 2-spindle Rockford.
14" Knight, sensitive.	3' Fosdick, plain radial.
14" Woodward & Rogers.	3 1/2' Morris, plain radial.
28" Barnes, sliding head.	4' Bickford, semi radial.
28" Cincinnati, sliding head.	

Shapers.

12" Perkins, belt.	22" Walcott, belt.
14" Smith & Mills, crank.	24" Gould & Eberhardt, crank.
20" Hendey, belt.	12" Niles, traveling head.

Planers.

32"x32"x8' New Haven.	44"x44"x12' Pond, 3 heads.
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Milling Machines.

No. 1 Knight, vertical.	No. 14 1/2 Brainard, universal.
No. 1 Clough.	

Boring Mills.

No. 1 Barnes, horizontal.	No. 1 Franklin, tool room.
2 1/2" bar Newark, horizontal.	3 1/2" bar Bement, horizontal.

Miscellaneous.

Bending roll, 12'.	Straightening press, Geier.
Bulldozer, No. 4 Williams & White.	Punch press, No. 19-C Bliss.
Cold saw, 7" Espen-Lucas.	Riveter, 1/2" Shuster.
Keyseater, No. 00 Baker Bros.	Shear, No. 396 Niagara, 8' power.
Press, No. 5 Stiles, geared.	

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117-121 N. Jefferson St., Chicago, Ill.

We are now prepared to furnish you

NEW and REBUILT

**Lathes
Drills
Planers
Shapers
Millers
Transmission
Motors**

**Key Seaters
Screw Machines
Punch Presses
Shears
Bolt Cutters
Grinders
Metal Saws**

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of advertisers herein, won't you kindly remember to say somewhere in your communication that the inquiry comes from Hitchcock's Machine Tool List? Advertisers are human; they like to know that the medium in which they spend their money is received and consulted by machinery users. Not being mind readers, they can only know this when you tell them, and if you neglect to tell them, the Tool List is deprived of credit for the service it has rendered.

Used Machinery For Immediate Delivery

Lathes.

- 1-14"x8' HAMILTON, Style A, compound rest, countershaft, etc.
- 1-16"x9' Perkins, compound rest, hollow spindle, countershaft, etc.
- 1-18"x12' Perkins, compound rest, hollow spindle, countershaft, etc.
- 1-18"x12' New Haven, comp. rest, hollow spdl., raising blocks to swing 30".
- 1-20"x17' J. & L., 13' centers, hollow spindle, cuts threads 3 to 40 U. S. or metric, compound and plain rest, raising blocks to swing 30".
- 2-Potter & Johnson Automatic Lathes.
- 1-No. 23 Geo. W. Prentice 3-spdl. Automatic Chucking Lathe, equal to new.
- 1-No. 24 Geo. W. Prentice 4-spdl. Automatic Chucking Lathe, equal to new.
- 1-31"x30' Ohl & Co., Compound rest, double back geared, face plate drive.

Planers.

- 1-30"x30"x8' Gray, single head.
- 1-30"x30"x10' Bement Dougherty, single head, with grinding head, motor driven for surface grinding.
- 1-36"x36"x10' New Haven, single head, good condition.
- 1-37"x37"x15' Lane, single head, good condition.
- 1-60"x60"x18' Betts, single head on rail, one side head.

Drilling Machines.

- 1-20" Rockford, stationary head, back geared, power feed.
- 1-22" Snyder, stationary head, back geared, wheel and lever feed.
- 6-22" Barnes, self-oiling, geared head, high speed.
- 1-24" Aurora, stationary head, back geared, power feed and auto stop.
- 1-36" Aurora, sliding head, back geared, power feed, auto. stop.
- 1-36" New Haven, sliding head, back geared, power feed, auto. stop.
- 1-26" Dibb, sliding head, back geared, power feed, automatic stop.
- 1-42" Baugh & Harris Radial, back geared.

Grinders.

- 1-10"x36" Landis Plain Grinder, good condition.
- 1-No. 6-A Gorton Double Disc Grinder, 18" discs, with countershaft, etc.
- 2-Yankee Twist Drill Grinders, capacity up to 2½" drills.
- 1-Whitney Wet Tool Grinder, wheels 16"x2".

Miscellaneous.

- 1-Oliver Universal Saw Bench.
- 2-Cold Metal Saws about 4" Capacity.
- 1-No. 2 Mitts & Merrill Keyseater, complete with bars, etc.
- 1-No. 3 Mitts & Merrill Keyseater, complete with bars, etc.
- 1-12" INDUSTRIAL Slotter, compound and circular table. A bargain.
- 1-16" Steptoe Crank Shaper, back geared, complete with countershaft, etc.
- 1-26" Smith & Silk Triple Geared Shaper, countershaft, etc. Good condition.
- 1-No. 4½ Garvin Plain Milling Machine, table 9"x42".
- 1-1½" Acme Bolt Cutter.
- 1-Gridley Piston & Ring Machine.
- 1-Ackley & Abbey Duplex Ring Miller.
- 1-Beaman & Smith 2-spindle Horizontal Boring Mill.
- 1-Six-spindle Baker Drill press.
- 2-Foote-Burt 4-spindle fixed center, Cylinder Boring Mill.
- 1-Foote-Burt 2-spindle Boring Mill.
- 1-100-ton Hydraulic Press, lever power, 30" between rails, 72" centers.

We are looking for good used metal working machinery of all descriptions, and especially tools such as Boring Mills, Planers, Radial Drills, Milling Machines, Shapers and Brown & Sharpe Automatics. Let us hear from you at once if you have any used machinery for sale or exchange.

D. M. Osborne Machinery Co.

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Warehouse: West 11th & Front Sts.

Cleveland, Ohio

The Scarce—and Growing Scarcer Trustworthy Machine Tools

We search out the true values of "Used" Tools, for the big Plants and little Shops, who realize the importance of buying GOOD Tools, and the wisdom of avoiding "taking chances."

LONG BED LATHES

62" Swing, 24' bed, Triple-gear New Haven Co.
60" Swing, 24' bed, Triple-gear Heavy Niles Tool Works.
36" Swing, 28' bed, Triple-gear Heavy, Putnam Machine Co.
42" Swing, 20' bed, Triple-gear Heavy, Pond Machine Tool Co.
30" Swing, 28' bed, Putnam Machine Co.
28" Swing, 30' bed, Double Back-gear Taper att., Pond style.
28" Swing, 36" bed, Fay & Scott.
24" Swing, 24' bed, Fitchburg.

OTHER LATHES

48" Swing, 16' bed, Pond.
36" Swing, 16' bed, Putnam.
36" Swing, 8' bed, Pond.
32" Swing, 12' bed, Fitchburg.
30" Swing, 14' bed, Bement-Miles.
28" Swing, 16' bed, Worcester.

SHELL LATHES

35—Single, Purpose "Cisco" with Forming Rest, 16" Swing, 8' bed, for 6" Shells.

ABSOLUTELY NEW SHAPERS

1—32" stroke, Back-gear Speed box.
2—28" stroke, Back-gear Speed-box.
1—20" stroke, Back-gear.
2—16" stroke, Back-gear.
3—16" stroke, Plain.
2—14" stroke, Plain.
2—12" stroke, Plain.

All in stock—immediate shipment.

PLANERS

72"x72" 8' Sellers, 3 Heads.
62"x62"x28" Betts, 2 Heads.
48"x48"x14" Niles, 2 Heads.
42"x42"x12" Pond, 2 Heads.

MILLING MACHINES

Plain, Table 60"x14", all Automatic feeds.
No. 34, Garvin, Table 36"x12".
Ten (10) Lincoln type, Tables, 27"x6", Pratt & Whitney.
Lincoln type, Table 39"x7".

RADIAL DRILLS

7' Arm, heavy, Pond.
7' Arm, heavy, Baugh.
6' Arm, Niles, Motor, Fan-base.
6' Arm, Bickford, Fan-base.
6' Arm, heavy, Pond.
54" Arm, heavy, Bement-Miles.
2—5' Arm, heavy, Pond.
2—5' Arm, Dresses, Cone-drive.
5' Arm, Dresses, Speed-box.
24' Arm, Dresses.
24' Arm, Wm. E. Gang Co.
24' Arm, Bement-Miles.

UPRIGHT DRILLS

36" Swing, 8' bed, Pond.
 36" Swing, 13' bed, Fitchburg.
 36" Swing, 14' bed, Bement-Miles.
 28" Swing, 15' bed, Worcester.
 28" Swing, 16' bed, New Haven.
 28" Swing, 14' bed, Fitchburg.
 26" Swings, 10' bed, Pond.
 24" Swing, 15' bed, Bement.
 24" Swing, 16' bed, Lodge & Davis.
 18" Swing, 10' bed, Draper.

ABSOLUTELY NEW LATHES

4-16"x6" 4-Cone, Single Back-gears.
 1-16"x6" 3-Cone, Double Back-gears.
 4-18"x8" 3-Cone, Double Bk.-gears Semi-Quick-Change.
 8-18"x8" 3-Cone, Double Quick-change.
 2-21"x8" 3-Cone, Double Bk.-gears Semi-Quick-Change.
 6-24"x10" 3-Cone, Double Bk.-gears Semi-Quick-Change.

"DOUBLE-SPINDLE" LATHES

24-40" Swing, 12' bed, McCabe, Triple-grd.
 26-48" Swing, 20' bed, McCabe, Heavy Triple-gear.

TIRE LATHES

42" Swing, Double-head, for cutting both wheels at one operation, 'open center drive' Niles.

TURRET LATHES

24" Swing, 21" hole, Gisholt.
 21" Swing, Gap style, Gisholt.
 2-20" Swing, full-automatic, 2" hole, Potter & Johnston.
 22" Swing, Turret Screw Machine, 21" hole, Garvin.

72"x12" 8' Sellers, 3 Heads.
 62"x62"x28" Bettis, 2 Heads.
 48"x48"x14" Niles, 2 Heads.
 42"x42"x12" Pond, 2 Heads.

40"x40"x12" Putnam, 1 Head.
 36"x36"x12" Sellers, 3 Heads.
 36"x36"x12" Gray, 2 Heads.
 36"x36"x8" Sellers, 4 Heads.
 36"x36"x8" Putnam, 1 Head.
 32"x32"x8" Pond, 1 Head.
 32"x32"x8" Sellers, 1 Head.
 26"x26"x8" Putnam, 1 Head.
 26"x26"x6" Pratt & Whitney, 1 Head.
 24"x24"x6" Sellers, 1 Head.
 24"x24"x5" Sellers, 1 Head.
 20"x20"x5" Sellers, 1 Head.

ROTARY PLANERS

No. 2 Cleveland, 50" Cutter-head, 6' travel, bed-plate, 3' x6".
 Newton 48" Cutter-head, bed 18' long, with extra bed-plate.

PLATE PLANERS

14" Wm. Sellers & Co.
 30" Hillis & J., will handle plates 25' long.

MILLING MACHINES

(Planer Type)

30"x30"x12" Ingersoll, Horizontal and Vertical spindle.
 36"x30"x8" Newton, Horizontal and Vertical spindle.
 36"x22"x8" Newton, Vertical spindle.
 24"x24"x14" Ingersoll, Horizontal spindle.
 24"x24"x6" Ingersoll, Horizontal spindle.
 22"x22"x11" Newton, Horizontal spindle.

36" Arm, Wm. E. Gang Co.
 24" Arm, Bement-Miles.

UPRIGHT DRILLS

36" Swing, Prentice, Sliding Head.
 33" Swing, Prentice, Sliding Head.
 24" Swing, Barnes, B. G. Auto. feed.
 2-20" Swing, Wheel and Lever feed.

MULTIPLE DRILLS

18-spindle, Baush, C-shaft drive.
 16-spindle, Baush, fitted for Motor-no Motor.
 8-spindle, Baush, C-shaft drive.
 4-spindle, Niles Tool Works, Gang style, Table 6' in length, Weight 10,000 lbs.

SLOTTERS

9" stroke, Bement.
 10" stroke, Wm. Sellers & Co.
 12" stroke, Wm. Sellers & Co.
 12" stroke, Bement.
 12" stroke, Bettis Machine Co.
 16" stroke, Wm. Sellers & Co.
 18" stroke, Wm. Sellers & Co.
 18" stroke, Bement-Miles.
 30" stroke, Baker Combination Key-scater and Slotter.

SHAPERS

28" stroke, Hendey Co.
 12" stroke, Dbl. Traveling-head, Sellers.
 12" stroke, Traveling-head, Sellers.

J. J. McCABE

149 Broadway

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Located right in the heart of your territory, we can give you a *prompt personal service* which you cannot secure from more distant markets.

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Yours for good service,

Purinton & Smith, Hartford, Conn.

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\$50,000 worth of Iron, Brass, Wood-working and Tinnners' Machinery; Tools, Chucks, Pulleys, etc., etc.; to be sold at a bargain on account of being forced to vacate our premises to make room for the new Union Depot.

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MACHINE TOOLS

FOR QUICK SHIPMENT

At Chicago—The Great Machinery Center

MILLING MACHINES.

- 1—No. 2 Cincinnati.
- 2—No. 2 Kempamith.
- 1—No. 2 Kempamith, universal.
- 1—No. 3-S Cincinnati, new.
- 1—No. 3-A Brown & Sharpe, univ.
- 1—No. 3 Becker-Brainard.
- 1—No. 3 Kempamith.
- 1—No. 4 LeBlond.
- 1—No. 5 Becker-Brainard vertical.
- 1—No. 20 Oesterlein.

VERTICAL BORING MILLS.

- 72" King.
- 60" Niles.
- 48" Colburn.
- 44" Baush.
- 42" Gisholt.
- 41" Baush.
- 37" Baush.
- 34" Bullard.
- 34" Colburn.

PLANERS.

- 2—87"x46"x18' Woodward & Powell.
- 1—87"x46"x10' Woodward & Powell.
- 2—76"x48"x18' Woodward & Powell.
- 1—48"x36"x 8' Woodward & Powell.
- 1—42"x42"x14' Woodward & Powell.
- 1—36"x36"x17' Powell.
- 1—36"x30"x 8' Woodward & Powell.
- 1—33"x33"x 8' Ohio.
- 1—30"x30"x 8' Woodward & Powell.
- 1—30"x20"x 6' Pease.
- 1—27"x27"x 7' Flather.
- 2—27"x27"x 6' Ohio.
- 1—24"x24"x 6' Gray.
- 1—24"x24"x 6' Pond.
- 2—24"x24"x 6' American.
- 1—22"x22"x 6' American.
- 1—22"x22"x 5' Gray.

GEAR CUTTERS.

- 8—No. 13 B. & S., spur & bevel.
- 3—24" Fellows.
- 1—No. 3 B. & S., spur.
- 1—No. 5 B. & S., spur and spiral.
- 1—No. 3 B. & S., spur.

LATHES.

- 1—60"x16½' Fitchburg.
- 1—42"x12' Putnam.
- 1—30"x14' Fay & Scott.
- 1—28"x17½' New Haven.
- 1—28"x16' New Haven.
- 1—26"x12' American.
- 1—26"x12' Davis.
- 1—25"x26' American.
- 1—25"x14' Bradford.
- 1—25"x10' Greaves & Klusman.
- 1—24"x14' Blaisdell.
- 1—24"x12' Economic.
- 1—24"x12' New Haven.
- 1—24"x12' Draper.
- 1—24"x10' New Haven.
- 1—24"x10' Draper.
- 1—23"x12' Greaves & Klusman.
- 1—22"x16' Flather.
- 1—22"x10' Whitcomb-Blaisdell.
- 1—22"x10' Schumacher & Boye.
- 1—22"x 8' Flather.
- 1—21"x16' LeBlond.
- 1—21"x14' Flather.
- 1—21"x12' LeBlond.
- 1—21"x12' Bradford.
- 1—20"x12' Draper.
- 1—20"x12' Flather.
- 2—20"x10' American.
- 1—20"x 8' American.
- 1—20"x 6' Lodge & Shipley.
- 1—19"x10' Rahn.
- 2—19"x 8' Rahn.
- 1—18"x14' New Haven.
- 1—18"x12' Champion.
- 2—18"x10' Draper.
- 2—18"x10' Bradford.

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